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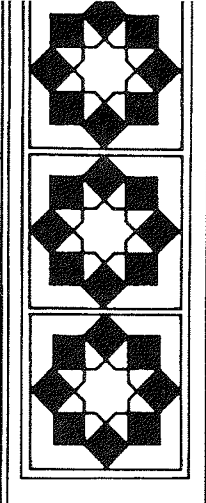
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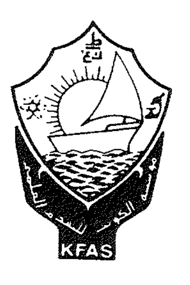
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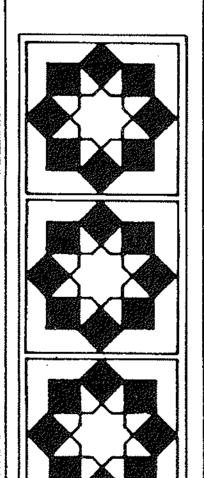
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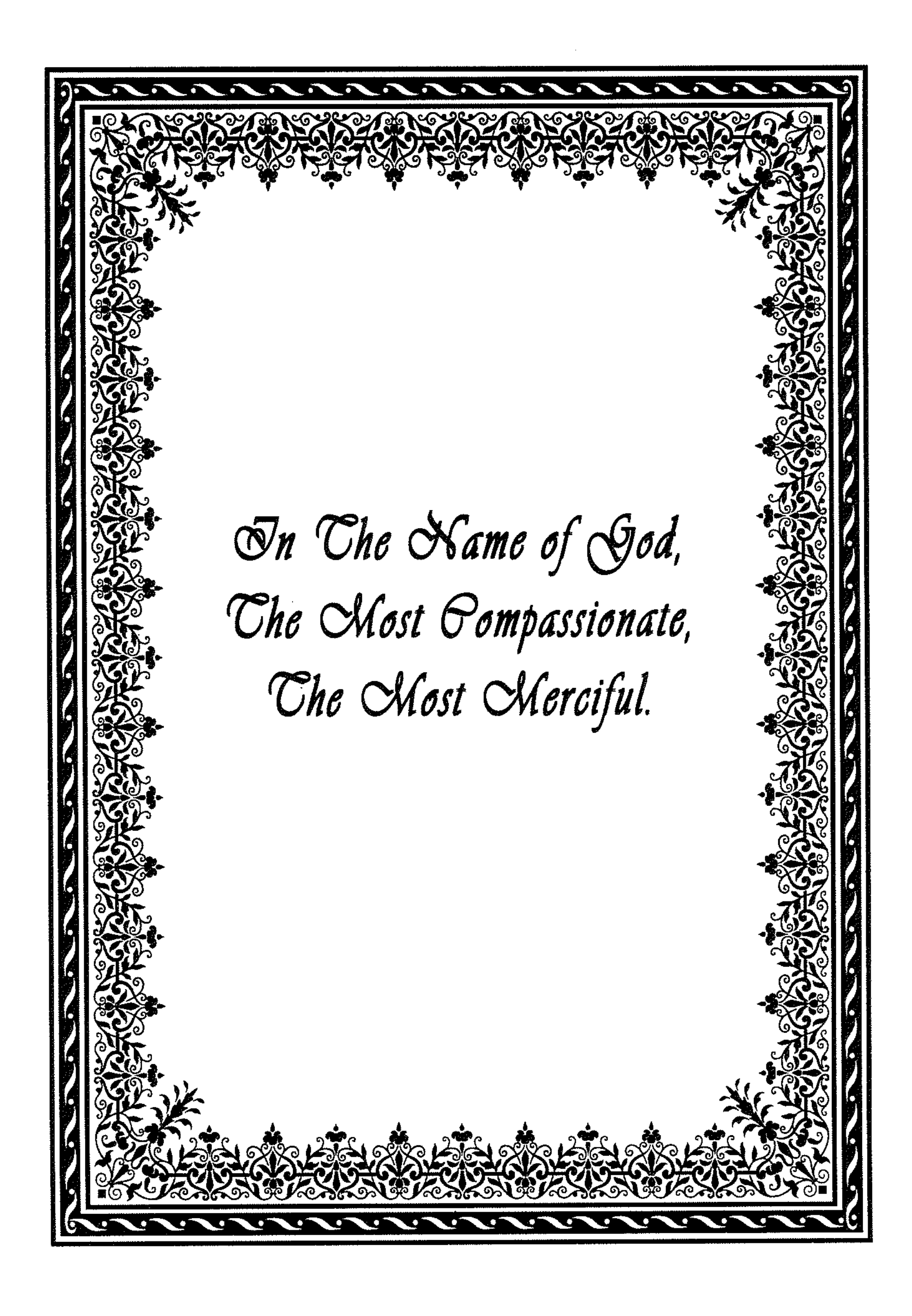
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In The Name of God,
The Most Compassionate,
The Most Merciful.



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PREFACE

Dr. Abdul-Rahman A. Al-Awadi
President
Islamic Organization for Medical Sciences
KUWAIT

Thanks to Allah Almighty for guiding us to Islam, enlightening our hearts with true belief, discarding all grief, dispelled worries, and freed our homeland.

This series comes following fifteen years of the idea of establishing the Islamic Organization for Medical Sciences and after its participation in local and regional book exhibitions where our volumes of Islamic Medicine were greatly appreciated by the visitors. However, because of the soaring cost of paper and publication, the individual book keeping has become very difficult, especially in the non-Gulf Arabic and Islamic countries, as bread earning receives the first priority of the inhabitants of these countries. Keeping in view the fact that the individuals need to be informed, and educated, of the important matter to make them effective member of their community and also a messenger to other communities, it is vital to provide them the contents of these conferences in a simplified way to enable them to carry along and comprehend the scientific purport.

In order to facilitate the possession of these books by the individuals, the Islamic Organization for Medical Sciences has

decided to issue a series of publications under the title "The Cultural Series of the Islamic Organization for Medical Sciences". Although the Organization is shouldering the largest share of the cost of production and publication of these books, still these are out of reach of a large section of Muslim individuals, due to escalating cost of living. The great sum of money available to the Organization is spent in bringing together and collecting the prominent thinkers of our Islamic nation in order to achieve appropriate opinions and covisions of the Islamic Scientists about right topics that need insight and the true objective word. And, subsequently, to present this information to every individual willing to increase his/her knowledge about the doctrinal writings in scientific medicine, as this prominent group of writers/thinkers sees this as an ordinance and a religious obligation to provide for all the Muslims, and to disseminate the message to the largest number of the people of this nation.

This series will include a group of books, each dealing with specific topic, as collected from the articles written under the respective domains and previously published in the Proceedings of the Islamic Medicine Conferences held under the auspices of the Organization. Moreover, all these publications shall remain concerned with one vital topic, that is, the Islamic Medicine. By doing so, we hope to have shouldered the burden off the Arabic/ Islamic reader to enable him/her to own the right material and hoping to have clarified a lot of mystery about the subject of Islamic Medicine to the Muslim and Arab readers.

Herein, I beseech Allah to guide our steps to what He likes and approves of.

INTRODUCTION

Dr. Ahmad Rajai El-Gindy
Secretary General Assistant
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KUWAIT

Thanks to Allah, the Almighty; the thanks of the grateful, the obedient, and the desirous of His forgiveness and retribution, beseeching him, to guide us to the right deeds, with praying and blessing his illiterate prophet (ﷺ) who said,

"When Adam's son dies, everything is separated from him except for three things, a current charitable deed, a righteous boy praying for him, and a useful science."

We pray to Allah that these series of publications will be of scientific use to the Muslims in particular, and to humanity in general.

This introduction will be included in all the publications of this series in order to acquaint the reader, who wishes to acquire one or more parts of it, with the objectives of the Organization, and the reasons behind its being established. We wanted to put down these words to the readers concerned about what we did, while the second part of this introduction will be specifically written for each book, including a summary of the researches therein.

Since the emergence of the idea of the Islamic Medicine fifteen years ago, the discussion of the meaning of "ISLAMIC MEDICINE" did not stop; the people argued: Is there an "Islamic" and "a non-Islamic" Medicine? and we found ourselves in front of three opinions:-

The first opinion:-Medicine is a human heritage; inherited successively by generations, and it is a human experience, acquired by technical and scientific practice, and religion has no role in it, and there is no need to indulge Islam in this subject to protect it from human practices.

The second opinion:- Islamic medicine means nothing to them except it is a past heritage, and we do not need it now because the world is talking about organs transplantation, genetic engineering, Lazer beams... etc. They even considered it a call of underdevelopment, and we have to put it behind closed doors; those are who don't want Islam to be mentioned at all.

The third opinion:- Although medicine is human practices and experiences, but every religion and every heavenly message has its own nature, ethics and practices which are derived from its teachings, and which adds to it its own style. The Islamic era was characterized with a comprehensive change in both the concepts and practices of the people; these concepts and practices were derived from the Holy Quran and the honored Sunna, and were followed by the Orthodox Caliphs, which produced a good harvest, with which they ruled the world, east and west with a civilization - Man was its master, good science its way and the strong belief its pillars. This civilization lasted for five complete centuries, and it was never stingy with its knowledge and arts on humanity.

For there is no favor of an Arab on a Persian, nor of a white man on a black man except by piety and good deeds, this was said by the enemies before the friends; and (Sarton's) testimony in his encyclopedia, the history of sciences, is the best evidence; (Sarton) divided the world into eras of civilizations like the Pharonic, the Babylonian, the Somarian, the Chinese, the Greek, then the Islamic Civilization which flourished in all walks of Arts and Sciences for five consecutive centuries, and in it were eminent scientists, thinkers, philosophers, physicians, pharmacists, engineers, Algebra's, Astronomers, Agriculturists, and people of thoughts who were distinguished with their excellence in the Divine Law, besides the cosmetic sciences.

To all these we say, our view of this topic is derived from Islamic Law, which came with its five goals, which are sustaining the religion, the mind, the self, the honor and the wealth. If we studied these goals, we'll find that three of them are concerned with Man's well being; that is the mind, the self and the honor, as for the other two, they are concerned with man's health, as there is no keeping of religion, nor of wealth without a strong good Muslim (The best one to hire is the strong and honorable). The prophet (ﷺ) defined three main points, if provided in any MAN, he will lead a very happy life, as he (ﷺ) says

"The one who sleeps secured in his bed, healthy in body, well provided for his day's food, ... he is like the one who owned the entire world."

In other words, he has got social, health and psychological security. Thus the Islamic Law talks about well being in its widest range. "The strong believer is more loved by Allah than the weak one, and both are good." The Islamic Law did not

speak about medicine in its narrow sense, through which the others are trying to attack us, but medicine is the means of health, and Al-Ghazaly, a Muslim religious leader, considered medicine as a religious ordinance in all Muslim homes.

Islam considers enjoying a good health one of the biggest blessings of Allah; as mentioned in the wise saying of the prophet (ﷺ), *"Two blessings many people are not endowed with; health and leisure time"*. These two blessings are two of the very important duties that must be kept by man as the Islamic rule says, "Whatever is not perfect without a duty, is itself a duty", thus man is not allowed to neglect his health, as it should not be neglected, because this is considered an aggression on the whole nation as it is so mentioned in the Holy Quran:-

> *"FOR THAT ACCOUNT WE ORDAINED FOR THE CHILDREN OF ISRAEL THAT IF ANY ONE SLEW A PERSON – UNLESS IT BE FOR MURDER OR FOR SPREADING MISCHIEF IN THE LAND – IT WOULD BE AS IF HE SLEW THE WHOLE PEOPLE, AND IF ANY ONE SAVED A LIFE, IT WOULD BE AS IF HE SAVED THE LIFE OF THE WHOLE PEOPLE"*

(Al-Maeeda: 32).

Abu-Bakr, (رضي الله عنه) said "I heard the prophet of Allah (ﷺ), saying, *"Ask Allah for certainty and health, for they are the best blessings bestowed on man is being healthy after being certain";* thus self-relief is the true gate to health; either psychological or bodily health, their only true gate is strong belief, belief in slavery to Allah, whatever inflicts you was not to wrong you, and whatever to wrong you, was not to inflict you.

The belief in the acts of worship which are prescribed by Islam are:-

Prayer is secret talk with Allah Almighty, and self purification five times a day standing in front of the Creator,

Fasting is self restrain from evil desires, and true feeling of the hunger of the Muslim brother who is deprived of a morsel of bread,

Zakat or *Alms* is a sacrifice, self cleanliness, and development,

Haj is a migration to Allah and his prophet, (ﷺ), leaving everything – power, wealth, prosperity and leaving in complete humbleness and slavery, equal with your kin Muslim... as it is said; "No Arabic is better than a non-Arabic, nor a white is better than a black man except by piety", and these acts of worship protects and restrains man from evil doings, thus leaving them will lead to the spread of evil deeds and man will gain nothing but punishment for what he had done.

In order to complete the building of man and society, and to achieve the goals of Islamic Law, the doctrines of lawful and unlawful were put down to guide man to the right road and bestow happiness on him; as the in lawful deeds man will find his happiness, and in unlawful deeds he will be perished; thus the prohibition of drinking alcoholic drinks, and all ways leading to it, as prescribed by Allah was for the protection of man's mind and body, the society from diseases and the consequences of the absence of his mind, the prohibition of adultery, and all ways leading to it, wanton display of beauty, solitude with a woman, and libertinism... etc, was prescribed to protect the family and the whole society from dissociation and mixing of lineage which destroy the society, thus the philosophy of

prohibition in Islam is meant for the prevention of harms to man himself and to others as well.

Thus, it is clear that the goals of Islamic Law (Sharia) can not be achieved without good health and well being, as Abu-Al-Dardaa said to the prophet, (ﷺ), "To be healthy and grateful, is much more better than to be ill and endure patiently", the prophet (ﷺ) answered him by saying, *"Allah loves healthy people, as you do"*.

That is not all, but Islam's view of the sick and sickness has overrun all that preceded it and whatever followed from laws or social systems, as Islam does not see sickness as an anger of Allah, or a touch of the devil, but a trial, and the Muslim has to be patient and bear it with patience as the Prophet (ﷺ) said,

"Any kind of sadness or grief or even the prick of a thorn that inflicts man is a blessing from Allah as He raises him a degree higher or takes from his bad deeds instead".

The Holy Quran came to the world with statements about the inner self, this was fourteen centuries ago, and it put to it four marvelous divisions in various parts of the Holy Quran, thus the world knew about the peaceful innersoul, the lamenting innersoul, and the authoritative innersoul. Abu-Hamid Al-Ghazally, has delved deep in the inner-self in his encyclopedia "The Revival of religious sciences", under the heading" Fear and Request", as the Holy Quran talked about the ailments of the heart, and their different kinds, as it was mentioned by Imam Al-Zahaby in his book "The Prophetic Medicine".

As for the medicine of the heart, it is only found in the sayings of the benevolent and kind Prophet (ﷺ), when he quoted Allah, the only source of all knowledge, he says that for

the hearts to be righteous, it must know its creator, His names, characteristics, deeds, orders, and prohibitions and anger, as there is no way of being righteous except by doing this, and no way of getting these advice except from Mohammed (ﷺ).

Imam Ibn Kerium Al-Jozeiah has divided the hearts into two divisions: suspicion and doubt, and desire and error. He quoted the Holy Quran as saying,

> *"IN THEIR HEARTS IS A DISEASE; AND GOD HAS INCREASED THEIR DISEASE".*
>
> (Al-Baqarah: 10), and:

> *[O CONSORTS OF THE PROPHET! YE ARE NOT LIKE ANY OF THE OTHER WOMEN: IF YE DO FEAR (GOD), BE NOT TOO COMPLAISANT OF SPEECH, LEST ONE IN WHOSE HEART IS A DISEASE SHOULD BE MOVED WITH DESIRE]*
>
> (Al-Ahzaab: 32).

The Quran described the inner-self when horrified or frightened, and how to make it peaceful again in His very simple and clear words:

> *"TRULY MAN WAS CREATED VERY IMPATIENT; FRETFUL WHEN EVIL TOUCHES HIM; AND NIGGARDLY WHEN GOOD REACHES HIM; NOT SO THOSE DEVOTED TO PRAYER: THOSE WHO REMAIN STEADFAST TO THEIR PRAYER; AND THOSE WHOSE WEALTH IS A RECOGNIZED RIGHT FOR THE NEEDY WHO ASKS AND HIM WHO IS DEPRIVED (FOR SOME REASON FROM ASKING) AND THOSE WHO HOLD TO THE TRUTH OF THE DAY OF JUDGMENT; AND THOSE WHO FEAR THE DISPLEASURE OF THEIR LORD, FOR THEIR LORD'S DISPLEASURE IS THE OPPOSITE OF PEACE AND TRANQUILLITY."*
>
> [Al-Maarij: 19-28].

This is how Islam considers health, which was defined by the prince of Islamic physicians: Ibn-Sina by saying: "Medicine is the science by which the human body is known, and what is good and what is not for being healthy or otherwise." This comprehensive definition which was introduced more than one thousand years ago, is nowadays adopted by the WHO, that health is the state of the healthy body, mind and society, not only the lack of diseases or inability.

In spite of this definition of the WHO, during the forties, it ignored the spiritual side, which shows the lack of a comprehensive view of Islam about health, as Islam defines health from all domains, bodily, spiritually, psychologically and socially, and this last definition came 14 centuries ago, by the Muslim physicians.

To reach these noble goals, and great objectives for the Lord's heir on earth, there had to be a way to keep man healthy, and this is by the science of medication which was considered by the Muslim religious scientists an ordinance in the Islamic world, and Imam Al-Shafeiy said about it; "There is no knowledge, better than the prohibited, and non-prohibited acts, to my knowledge, except the science of medication". Dawood Al-Antaky in the introduction to his famous prescription says that there is no science that can do without the science of medication, because no acquisition of any knowledge is perfected without a sound body, senses, and mind.

Islam has taken good care of the different branches of medication; protective, preventive, an rehabilitative; in the protective, many sayings of the prophet (ﷺ), called for protection, in order to keep health in all its branches – cleanliness, food organization, and many healthy habits, as well, the

researches in this domain is varied and all are derived from the prophet's wise sayings, no need to repeat them here.

As for the treatment side Islam legalized medication, and the prophet (ﷺ) ordered medication and looking for it when he said:

"Ye believers, get treatment, the Lord created no disease without its medicine, known to those who know and ignorance to those who don't know".

As for rehabilitation, we are asked to look for it, he allowed one of his disciples to put a piece of gold on his lost nose during his invasions.

As for the three opinions pre-mentioned concerning the definition:-

To the first group we say: Medication is a human heritage and contribution, but the human thinking has deviated from the right path, and religion is in the church and in the mosque or the temple, due to their sufferings from the control of the church over medication and sciences, and making them only for the priests, medication did not develop, and the ship of science sank deep with its arsenal of destruction, thus they produced the microbial bombs, and medication turned into fatal poison; instead of relieving pains, and becoming a tool of the Lord's benevolence, it became devastatingly harmful, and the brother became keen on eliminating his human brother, and the call for killing substituted the call for mercy, the organs began to be sold, and man was transferred from the master of earth to a sample in labs, and source of trade .... etc. the list is endless.

The best evidence to be quoted here is the saying of Aben-haimar; the father of the atomic bomb, when he saw it explode

in Hiroshima from a distance, he said his famous words. "Now, and now only, science has sinned".

As for the second group: which said "Islamic medicine is nothing but an ancient memory and a call for under-development.." we say to them that the heritage of any nation is like the roots of a tree, whenever it goes deeper and deeper in history, it becomes firmer and firmer and provides it with the means of living; the invention of genetic engineering, the nuclear bomb, and organ transplantation are not only signs of civilization, but they are the leaves of the tree and its fruits, as civilization is much more wider than that, and cares less with its achievements, but cares more for the achiever, MAN, and cares for the philosophy of his existence in this world and the here-after, as well as his ethics and culture.. if he is separated from these, he will be lost for ever. Now although the western man enjoys the highest per capita, and has got every means of prosperity, we find the percentage of suicide going up and up, as well as the addiction of narcotics, drugs... etc. became a daily practice; to enable him to forget and escape from his worries... the western man neglected the spiritual side of feeding his inner-self, and instead tried to feed on earth's food, thus he failed, and was transferred to a cog in a big machine.

This is not only in the west, but it is now prevalent in the east, as well; family relations are severed, social relations collapsed, man changed into a wild beast in a jungle full of fierce animals, each is trying to eat the other. I don't want to say more, it is enough to remind you with the AIDS that is harvesting man's bodies... Nevertheless, no body talks about chastity, virtue or ethics.. but they began to distribute contra-ceptives, for males and females, as if saying "Do it however, and whenever you want..! but use these contraceptives to

protect you from the AIDS..!" Is this the Islamic way or attitude towards the man, whom it honored and asked to walk and learn and enjoy the fruits of life. Man asks, as many asked before about health and happiness, in spite of his materialistic progress and scientific development in all fields of medicine and protective treatments.

Islam gave due attention to man's environment, and warned him against corruption and doing mischief, as both affect his health, the Lord's words describe what happened all over world from corrupting the environment, which threatens man's life as He said' *"CORRUPTION HAS APPEARED ON LAND AND IN SEA ON THE HANDS OF MAN, TO MAKE HIM TASTE SOME OF HIS DOINGS, HOPING HE MIGHT RETURN TO RIGHTEOUSNESS"*, and He orders us not to do mischief by saying, *"DON'T CORRUPT THE EARTH AFTER IT HAS BEEN RECLAIMED."* Corruption here, I believe is both materialistic and ethical; as material corruption includes mischief on earth and around it, and ethical corruption means self and moral corruption.

To add to all these views that each civilization has its characteristics, its features, its morals, and its practices, Islam is unique in this, as Islam sees man as a whole, body and soul in full balance, none overweighs the other, as he did not worship the material, nor invented priesthood. Islam has taken care of man before he was born, when choosing a wife or a husband, at marriage, when he was a sperm drop, a baby, young, and old, Islam put to him a very accurate disciple system of life, taught him how to eat, drink, dress, treat himself, his Lord, his family, and his community. Islam has put to him goals in life – as it is a farm for the hereafter, to harvest from what his hands grew, and Islam was able to introduce a civilization to the world, with

which Europe progressed from its dark ages with the help of the Islamic doctrines, but the Muslims slackened down and left Europe to lead the ship of scientific development. It may be that our interest in calling medicine by the Islamic Medicine, came as a symbol to awaken the Islamic world, and tell them that there is a lot in Islam in all fields; economic, architect, arts, cosmetic, medical... etc. and their commitment to Islam will bear fruits, too. One objective of choosing this name to medicine is the human deviations in practicing medicine in the West, but the East has to have a loud voice to awaken it and shake it; that is the voice of Islam, by providing the right opinion in these practices, especially when we lost the lead of materialistic science, but we can still provide it with what purifies them and saves them from deviation, this is by means of the enlightened Islamic views. Moreover, the communication revolution has made the world a small village, knowing what happens all over it by the second... these developments are knocking our doors, thus we must be aware of it and give the Islamic view point in it, showing the advantage of Islam which differentiates between what is right from what is not.

The Lord knows what the inner-self whispers, as He is nearer to him than his vein, and He is the maker of his inner-self, and He directed him to his success, as He says'

"BY THE SOUL, AND THE PROPORTION AND ORDER GIVEN TO IT. AND ITS ENLIGHTENMENT AS TO ITS WRONG AND ITS RIGHT. TRULY HE SUCCEEDS THAT PURIFIES IT, AND HE FAILS THAT CORRUPTS IT".

(Al-Shams: 7).

The Almighty knows what the corrupt eye sees and what is hidden in the hearts.

Some people suggested that we call it THE ARABIC MEDICINE, in order not to distort the picture of Islam, as a result of misdemeanor of some practitioners, but this name might lead to the understanding of the use of medicinal plants and ancient medication practices, and this has its shortages, as well as its advantages, too, and because most of those who enriched the Islamic movement were not from the Arabic environment, like Al-Razy – from Al-Rey, Ibn-Sina – from Russia, and Al-Bukhary – from Tashkand... etc and thus we'll enter into the vertigo of apartheid, but Islam had engulfed them all. Moreover, if we want to discuss the point of view of Islam in modern things, on what ground shall we argue? Are there Arabic foundations? or, all the foundations taken from the Islamic Law (Shareeaa)? Thus the best name was "THE ISLAMIC MEDICINE", which is nearer to the fact, as for the fear of the misbehaviors, which might be alluded to Islam, wrongly, we know that all Adam's sons are sinners, and the best sinners are the repentants, we are in a stage trying to erase eras of Islamic decay and weakness, we want to contribute to Islam and to be affiliated to it again, as well as to revive its name and face all over the world, and to prove that its doctrines are applicable, and their consequences are guarantee for man's well being and prosperity.

The Organization aims, also, at retrieving the Islamic behavior which was defined to Man by Islam, and make part and parcel of his daily conduct; if cleanliness, for example, is part of the belief, as said by the prophet (ﷺ), we find our Islamic states are the least countries enjoying and abiding by this Islamic ordinance, although it is the main road to health, and there are many wise sayings which organize the life of the Christians as well as the Muslims in order to lead a healthy and clean life, in the same way the orders and prescriptions in Islam

are all related to man's psychological, social and body health; like prayer, fasting, Zakat, Haj, and others of the ordinances that have spiritual meanings which invests in Man tranquility and protects him form psychological and body diseases. There are many researches reinforcing these hypotheses, and the things that Islam forbids us from doing are essentially for our sake, we are not far away from what the world is suffering from narcotics, alcoholic drinks and AIDS which Islam prohibited.

We also wanted to utilize the plants which we have as a gift from the Lord, and Muslims have surpassed the world in this field, thus they kept their heritage of plants for the future generations, moreover they added and developed it. They wrote many books from which the Europeans took and translated and utilized till the 19th century; all their experiments and observations built on high scientific standards: Al-Hawy is considered the first scientific clinical encyclopedia in the history of the medical sciences.

Islamic civilization, at that time, was able to open its arms welcoming every active worker, Muslim or non-Muslim, as Islam has no discrimination, and no coercion in religion, no one is better than the other except by worship and good deeds, thus scientists migrated to it from east and west to add to its sciences.

I'll mention here, only, the testimonies of some Western scientists for the Islamic civilization:- "Froje Garoody" talks with sadness and grief about western Civilization; he said. "The Western civilization is dying and committing suicide because it deviated from following the natural disposition; the instinct, and its masters considered man the director of the nature which he ruled, but after five centuries of the experience we found out

that Nature is the main store of the primary materials and the place for man's leftovers, this made us always destroy nature, and this is against what the Holy Quran decided, as it decided that man is the Lord's heir on earth, and man is concerned with keeping natural balance"; then he says; "Our present western civilization is dying, not because it is short of means, but because it lacks goals". Man began to threaten himself with annihilation, and the result is the destructive weapons that man possesses are enough to destroy the planet earth one hundred times, what poor creatures we are!

This civilization is carrying in its womb the causes of its destruction, on the contrary of the Islamic civilization because the Islamic civilization is coming from the Lord who made it, not man, nor is the Islamic civilization an extension of history, but a revelation from the Lord to His prophet (ﷺ) through the Holy Quran, dictating a Holy Constitution satisfying the body and the spiritual needs of the human beings, then following this came the wise sayings of the prophet (ﷺ) to explain the quranic doctrine, thus everything became clear, the lawful is clear and the unlawful is clear, and the difference between them is clear. The world is about to face a crisis due to its losses from addictions, as the costs of these addictions reached 14 billion $ in one year in the USA only, and these losses were in work hours, accidents, family problems... etc. due to the addiction of narcotics or alcoholic drinks, which Islam prohibited. This big sum of lost money is more than the revenue of many countries, and the world will face more than 40 million individuals inflicted with AIDS by the year 2000, and 10 million orphans; the WHO estimates the number will be doubled, nevertheless, virtue is absent, chastity killed, and they don't know where they are going... and no body knows!

Max Mayerhoof testifies: "The Islamic medicine has reflected the sun shine which was setting in Greece, and the moon glittered in the sky of the dark ages, and other stars brightened by themselves and lit the gloomy dark sky, then the moon went down and the light of the stars waned in the revival age, but their traces are still there, to be felt in the civilization of today.."

Montgomry Watt said; "I'm not going to look at Muslims as a barbaric army invading Europe, but I'll consider them the representatives of a civilization which achieved great successes all over the world, spread them to their neighbors. The Europeans are not appreciating their debt to the Islamic Civilization!! They even try to find faults with the volume of the Islamic effect and its importance in our cultural heritage, forgetting, again, that our good relations with the Arabs and the other Islamic nations calls upon us to be aware, to the end, that we owe them, not to mention this truth, or its denial is not right..."

Montgomry Watt didn't stop at that, but he added, "Our following the Arabic Medicine, which lasted till the 15th and the 16th centuries is evidently clear in the printed books, and the first of these books was explanations of the 9th chapter of the Principles of Al-Razy, then followed the printing of Ibn-Sina for three times, before Galinos, and till the year 1500 sixteen editions of "Al-Kanoon", the "Law". The statistics show that the quotations and extracts found in the early European writings are evidence that the impact of the Arabic books surpassed and surmounted the Greek one.

He says, too, "Islam in essence is not only a mere religious movement, but it is also a human value embedded in life of the peoples who embraced Islam, or joined it, it was a kind of

unique human existence in the world as the conditions of the Islamic openings were to permit the other people to continue practicing their former habits, laws, and languages, for paying taxes (Jiziah), these Islamic rules strengthened the relations between the Muslims and the peoples of the countries they conquered, thus the people continued to practice sciences, arts and especially medication.

These three testimonies are only a sample, there are a lot of others for which there is no space to quote here, but in time we will.

In addition to this, the last WHO statistics mention that 25-30% of the diseases from which man suffers nowadays are caused by the side effects of the chemical medicines, as well as their high prices, and the expertise which they need to manufacture. Contrarily, however, to that, our Islamic countries enjoy a suitable weather for the medicinal plants to grow and treat a lot of diseases. All we need are issuing political decrees as China and India and other nations which produce these medications in the most modern fashion.

This is a short synopsis about the idea of Islamic Medicine, and to reinforce this idea, we invited a group of Muslim thinkers to take part in many conferences to write in this field, and we have received a lot of their contributions which will be published in due course of time, under different headings.

A SUMMARY OF THE RESEARCHES IN THIS BOOK

Dr. Ghalioungui is considered one of the pioneers of those who practised and cared for the heritage of Islamic Medicine in general, and Ibn Al-Nafees in particular; he delivered many lectures in this domain, and wrote a book about Ibn Al-Nafees.

In this paper he refuted all the claims of the Westerners about the discovery of the small blood circulation by William Harvy and Sirfanos; he proves how Ibn Al-Nafees preceded them to this important discovery hundreds of years before them, reinforcing his defense with documents, evidences and reasons.

Dr. Abd El-Kareem Shehada joined him and obtained his Doctoral Degree on this virtuous scientist (Ibn Al-Nafees) after he wrote about part of his life, his different works, his achievements – in science in general, and in medicine in particular.

Then Dr. Sulaiman Qataya came to refute the claims of the West - that Ibn Al-Nafees did not practice surgery - and mentioned in his book "Explaining the surgery of the law"; a book of criticism of the book of surgery by Ibn Al-Nafees. Ibn Al-Nafees would not have been able to write a book about surgery without practicing it himself.

Dr. Qataya compared what Ibn Al-Nafees wrote in his book and what he found, and how Ibn Al-Nafees described the heart very accurately; and this can never happen without practical study, thus he refuted the claims of the first group who

claimed that Ibn Al-Nafees did not practice surgery, and the second group who claimed that he only practiced surgery on animals, not human beings.

Dr. Albert Zaki Iskandar talked about Ibn Al-Nafees, then about the most important book he wrote; "The comprehensive book of practicing medicine", and quoted examples from that book about the duties of both the patient, the physician and the nurse; before, during and after the operation.

Dr. Abu-Shady Al-Rouby talked about Ibn Al-Nafees, the philosopher, and compared his complete message about the biography of the Prophet (ﷺ) (*SIRA NABAWIYA*), with Hay Ibn Yakzan by Ibn Sina and the message of Ibn Tofail, and showed the harmony between philosophy and Islamic Law (*Sharia*), and that Man by his natural instinct, and his meditation can recognize the existence of the Lord, and to know for sure that His messengers were sent by Him to guide His creatures. The complete message of Ibn Al-Nafees is characterized by his prediction of the future of the Islamic nation.

Then the forum was opened for comments and discussion on these trends.

REPORT ON THE SESSION

This session was a seminar on "IBN NAFEES" which was held from 11:30 a.m. to 1:30 p.m. under the chairmanship of Prof. Hamdi Al-Sayyed with Mr. Ibrahim Al-Shatti and Dr. Mohammed Salehia as co-chairman and moderator respectively. First of all, the chairman gave his opening remarks and then five renowned scholars read their papers whereas two learned professors gave comments on the presented papers. Later on, general discussion was allowed in which the participants took part and expressed their views. After the closing remarks of the chairman, the session was adjourned.

Editors.

OPENING REMARKS OF THE CHAIRMAN

Prof. Hamdi Al-Sayyed

OPENING REMARKS OF THE CHAIRMAN

Prof. Hamdi Al-Sayyed

Now, we are starting the Seminar on Ibn Nafees. Perhaps, we will be having a small introduction and we want to say that Dr. Mohyuddin Al-Tatawi, the Egyptian physician was the first one to introduce Ibn Nafees at Berlin library in 1924, after which he continued his efforts at Phiberd city in the same year. He was the first to tell us that, Ibn Nafees by the beginning of the 7th Hijri century, started working in Damascus, after which he lived in Cairo, where he died at the age of 80. His name is Allauddin Abul-Hassan Ibn Hazam Al-Qureshi Al-Damashqi Al-Masri. He was born in 1210 and Adel Saifuddin Al-Ayyubi, was then the king and he studied medicine. He was taught medicine by Mohazabuddin and Imran Al-Israili, who gave it to a great number of wellknown physicians at that time. We don't know exactly, but we think that in 1236, Ibn Nafees left for Cairo, lived there and he was a physician and a teacher of medicine. He became the head of the eye department in the Bemaristan Al-Mansoori, which was the main hospital and Badaruddin Hassan, Aminuddaula, Al-Dumyati, Abul-Fadal Al-Iskandaria were among his pupils. Besides medicine, he was teaching languages and Fiqh also. He was not married and he was said to be very tall, handsome, courteous and he received

many physicians at his house. He was devout and it was said, that before his death, some of other physicians said to him, "Why don't you have some alcohol to help you out of this disease? And he said, "No, I can not meet God the Compassionate, with a drop of alcohol in my body". He died in Cairo at the age of 80, in 1288 and the king Qarawon, gave all his wealth and books and belongings to Bemaristan Al-Mansoori. Now we start our seminar.

THE WEST DENIES IBN AL-NAFIS'S CONTRIBUTION TO THE DISCOVERY OF THE CIRCULATION

Dr. Paul Ghalioungui
EGYPT

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Few would doubt today that Ibn Al-Nafis was the first to describe the lesser circulation. But this contribution was much wider. It included:

1. Denying the existence of any pores through the interventricular septum.
2. The flow of blood from the right ventricle to the lungs where its lighter parts filter into the pulmonary vein to mix with air.
3. The notion that blood, or spirit from the mixture of blood and air, passes from the lung to the left ventricle, and not in the opposite direction.
4. The assertion that there are only two ventricles, not three as stated by Avicenna.
5. The statement that the ventricle takes its nourishment from blood flowing in the vessels that run in its substance (i.e. the coronary vessels) and not, as Avicenna maintained, from blood deposited in the right ventricle.

6. A premonition of the capillary circulation in his assertion that the pulmonary vein receives what comes out of the pulmonary artery, this being the reason for the existence of perceptible passages between the two.

This is the minimum that could be granted to this genial physician. But even this bare minimum has been hardly acknowledged by the West as its debt to Arabian medicine. Western authors seemed indeed infuriated at seeing the credit of such a momentous discovery escape from its scholars in favour of an Arab, and they were particularly intent at denying any connection between Ibn Al-Nafis and Harvey, going as far as asserting that even Arab authors, his contemporary or followers, were totally ignorant of discovery, and that Harvey and his Italian predecessors had arrived independently at the same conclusions.

Sarton[1], after reading Meyerhof's publication of Ibn Al-Nafis's manuscript[2] seemed to doubt even this German authority: "If the authenticity of Ibn Al-Nafis' theory is confirmed, his importance will increase enormously for he must be considered one of the main forerunners of William Harvey and the greatest physiologist of the Middle Ages. But we need confirmation. The relevant Arabic text was edited (on the basis of Berlin MSS) together with a partial German translation full of mistakes, by an Egyptian Physician ...." as if the mere fact that the author was Egyptian threw doubt on its authenticity. Ralph Major[3] stated that the admirable observation of Ibn Al-Nafis remained unknown to the Western world during seven centuries, that is, until a copy of Ibn Al-Nafis's manuscript was discovered by Tatawy. Cisneros[4] wrote that Ibn Al-Nafis wrote commentaries on Galen, Hippocrates and Avicenna, in one of which he denied the existence of interventricular passages and

outlined a description of the circulation, but that this was known to the West. Temkin, likewise, denied any connection[5]. Even Meyerhof[6] who recognized that the text of Servetus was nothing more than faithful extract of the writings of Ibn Al-Nafis, was of the same opinion.

Were the teachings of Ibn Al-Nafis really forgotten both in our countries and abroad until Tatawy rediscovered them in 1924?

In Arab countries it would have been extraordinary indeed for a physician who attained such fame to have sunk into total oblivion.

The first argument brought forward was the absence of any mention of Ibn al-Nafis in Ibn Abi-Usaybi^ca's collection of biographies. This was based on Muller's edition, and it was suggested that professional jealousy between the two Arab physicians was reason of the biographer's omission[6]. It is known now that Muller's edition, published in 1882, was incomplete for Dr. Youssef Ish[7] discovered in 1947 a fragment of Ibn Usaybi^ca's work unknown to Muller, in which the greatest respect for Ibn al-Nafis is expressed.

As to ignorance of Ibn al-Nafis's discovery by his contemporaries, incontrovertible evidence was recently found that proved that he was fully acknowledged[8].

1. Ibn al-Nafis's theories are repeated almost word for word in a manuscript by Zain al-Masry, in which the reasons why they were apparently forgotten are explained. It is known that Ibn al-Nafis wrote a commentary of the whole canon in parts, each dealing with a particular subject. Zain al-Masry stated that Ibn al-Nafis wrote his commentary on anatomy only after terminating the other parts, shortly before his

death. After he died, his disciples hoarded it to the point that when Qutb al-Din al-Shirazy attempted to obtain it he received a reply that Ibn al-Nafis had died without completing it. Qutb al-Din had to repeat his request but he could get it only a few days before his death after the Sultan had personally insisted that it be sent to him.

2. Nevertheless, a word for word copy of the same commentary is found in *Sharh ul-Kulliyat* that was completed by Kazrouny in 1344 A.D., less than sixty years after Ibn al-Nafis's death.

3. In addition, a detailed expose of Ibn al-Nafis's theory, with a most laudatory comment is quoted in a 17th century manuscript by an unknown author (Paris Ms. 5776)[9].

The rigid belief in the ignorance of Arab authors in respect of the work of Ibn al-Nafis cannot therefore be maintained. As Iskandar[8] to whom we owe the previous knowledge commented: "these discoveries may serve to reopen discussions.." The question now is: Did the Latin West have access to Ibn al-Nafis?

Around the end of the fifteenth century, the Italian Physician Andrea Alpago spent many years in Damascus and in the Arab East to learn the language and study the Arab manuscripts, among which there were possibly copies of the commentaries of Kazrouny and Zain al-Masry. On his return he published (in 1547) in Venice that then ruled Padua a Latin translation of the part of Ibn al-Nafis's commentary dealing with pharmacopoeia. He might conceivably have translated also the rest of transmitted, orally or hitherto unknown writings the rest of the Commentary to his colleagues in Italy, specifically in Padua, where a sudden explosion of this knowledge was soon to happen.

From the death of Ibn al-Nafis in 1288 to the date of the publication of Harvey's De Motu Cordis in 1622, Arab authors used Ibn al-Nafis's Commentary. Around 1500, Alpago was back in Italy. In 1543, Vesalius in "De Corporis humani fabrica" denied the existence of pores in the ventricular septum. In 1547, Alpago's translation was published in Venice. Six years after him, in 1553, the Spaniard Miguel Serveto published in his theological work "Christianismi Restitutio" his view that blood passes from the right to the left ventricles not through the septum as was commonly believed but by a lengthy passage through the lungs in the course of which it becomes elaborated and acquires a crimson color. In spite of the Spaniard's statement to the contrary Serveto was not the first to notice this change in colour for it was already known to Galen[9].

Six years after Serveto, in 1559, Realdo Colombo in "De Re Anatomica" wrote: "There is a septum between the ventricles through which it is thought that blood from the right ventricle passes to the left; but they are very much in error, for the blood is carried by the pulmonary artery to the lungs, from whence it passes with the air by the pulmonary vein to the left ventricle of the heart".

Another twelve years and in 1571 Andrea Cesalpino wrote in "Questionum Peripateticarium" that the notion of the circulation of the blood from the right ventricle to the left ventricle through the lungs conforms to facts that are apparent from dissection. He then described the systemic circulation, using the word circulation in that connection for the first time. In this book, he also described experiments with vein ligature that are identical with those that Harvey published in "De Motu" 51 years later, and we know what Harvey owed to his Paduan masters.

1288: Death of Ibn al-Nafis

14th: 17th centuries: Arab commentators

1500: Alpago back in Italy

1543: Vesalius: "De humani corporis fabrica"

1547: Alpago's translation

1553: Miguel Serveto's Christianismi Restitutio

1559: Realdo Colombo's De re anatomica

1571: Cesalpino's Quaestionum Peripateticarum

1597-1602: Harvey at Padua
Fabrizio defines the role of the venous valves in "De venarum osteolis"

1616: Harvey lectrures on his theory

1628: *De Motu Cordis*

But the most venomous denial came from Curiese del Agua who, in a totally biased attempt to vindicate the priority of his countryman Serveto[10] blindly denied the very existence of Ibn al-Nafis. He started with the usual argument of his like, flatly denying any original contribution of the Byzantine or the Arabs to medicine who, he said, were mere compilers and copyists and were content to follow the doctrines of Plato, Aristotle, and Galen without, to his knowledge, adding a single new observation, as could be seen by reading Oribasius, Tralles, Paulus Eginetus from Byzantium, Avicenna of Baghdad (or so he says), and Abulcasis, Averroes, and Maimonides from Cordoba. He admitted that they enriched the materia medica but he claimed that they eliminated from medicine any original interpretation or new clinical observation and were not even allowed to own any philosophical treatises owing to the despotic fanaticism of the rulers.

He then denied the very existence of Ibn al-Nafis on grounds that prove his monumental ignorance. His arguments were the following:

1. The name of Ibn al-Nafis is sometimes given as Ali, at others as Abul-Hassan. He obviously knew nothing of the Arabic usage of the *kenia*; and he then coldly assured us that he was well aware that *Abu* and *Ibn* both meant son.

2. Ibn al-Nafis lived in the twelfth century (he actually lived in the thirteenth century) when Damascus was under Ottoman rule. He was, therefore, a Turk, not an Arab, since the Seljuk Turks ruled this city until it was reconquered by Saladin in 1174. Our author seems totally unaware of the difference between the Seljuks and the Ottomans and of the fact that Ibn al-Nafis lived and died (1210-1288) in Cairo when Damascus was under the Ayyubids and the Mameluks.

3. The silence of 13th and 14th centuries and the absence of evidence that the manuscript of Ibn al-Nafis was ever published. We have already answered these two points.

4. If we deny that Serveto discovered the circulation on the basis of a manuscript of doubtful authenticity (sic!) we would have even more reasons to deny that Vesalius discovered the impermeability of the septum, which would be a historical heresy. In fact any statement to the contrary is a heresy.

5. It seems difficult to believe that the supposed Ibn al-Nafis could describe the circulation without performing dissections that he denied ever having performed. In answer, we would point out that there is nothing to prove that Serveto carried out any dissections of his own, since his argument was purely theological.

I would like to pause here and try to prove that Ibn Al-Nafis did dissect animals if not human bodies, even if he had to perform them with the same secrecy as his Renaissance colleagues who were permitted only one cadaver a year, and even if he had to declare that he did not dissect out of religious obedience, exactly as did Galileo, and Kepler and Copernicus declare their adhesion to beliefs that they denied for fear of the Inquisition.

The Arabs were greatly interested in anatomy but we often misunderstand them because the Arabic word *tashrih,* means both anatomy and dissection, like its counterpart anatomy in Greek, French and English. But Ibn al-Nafis, in his introduction, while discussing the utility of *tashrih*, the knowledge of function by *tashrih*, the anatomical difference between animal and man, discussed the instruments used in *tashrih*, the different ways of preparing anatomical preparations, and distinguishes between the art (*fann*) and the science (^{c}*elm*) of *tashrih,* especially saying that he wished to help his readers in perfecting their knowledge of the art of *tashrih* (*el^{c}elm bi fann al-tashrih*).

There are further statements that support my assumption, e.g. the heart contains no more than two ventricles and there is no opening between them for *tashrih* contradicts Avicenna's statement to the contrary. Moreover, where could he get the notion of the compactness of the septum when all books maintained the contrary, except from personal observation?

The second statement concerns the nourishment of the heart that, he stated, reached it from the blood that flows in the vessels that run through its substance. No arm-chair theorising could lead to such a discovery that is usually attributed to Harvey.

The Arabs had a deep respect for anatomy. Haly Abbas, discussing the ancients, strongly criticized them, specially Paulus Aeginetus for their little interest in that branch of knowledge. Ibn al-Nafis when he declared his reliance on Galen, qualified his statement by saying that he relied mostly on him (*akhtar ihtimamina*) except in some minor matters that he thought resulted from copyists' errors or from Galen having recorded them without assuring himself of their truth; and he added that he relied on his own observation, whether these agreed or not with his predecessors.

Del Agua then proceeds to say that Ibn al-Nafis did not describe the circulation since he did not point out to any communications between the branches of the pulmonary artery and the pulmonary vein, and that he did not know that the ventricles contracted. This, of course, is not true.

He further wrote that Ibn al-Nafis never carried out any personal observations, since he did not mention the fundamental notion of the change in colour of the blood. Here, too, our valiant Spaniard showed his ignorance, for Galen already had described this change[11].

Finally, in an ultimate convulsion of chauvinism, Del Agua argues that since at that time there was an intense commercial and cultural exchange between Arabs, Jews and Venice, why not assume that an Arab or a Jew acquired a Latin copy of Servet and made an apocryphal translation of which he attributed the authorship to an invented Ibn al-Nafis, to exalt Arabian medicine.

Thus far from proving his point Del Agua proves ours. Such exchanges were indeed common place and as at that time the Arabs had much more to give than to receive, knowledge ran

from the East westwards, rather than otherwise. This is proved by the numberless translations of Arab authors and, in this case, by Alpago's translation of Ibn al-Nafis that preceded Serveto. It is thus much more likely that Serveto translated Ibn al-Nafis or another Arab than otherwise.

We already stated that had Ibn al-Nafis given as much attention to the peripheral circulation as he so brilliantly gave to the lesser one, he would have built unaided a complete theory of the circulation.

In *maqala* 2, *fasl* 12 of his *"Al-^{c}Umda fi Sina^{c} et il-Giraha*[12]*"*, he stated that the reason of the near constant proximity of arteries and veins is to connect them so that veins gain from arteries heat and life, and veins derive from arteries the thin vaporous blood through communicating pores. Sami Hamarna[12] who published Ibn al-Quff's study commented that in this passage Ibn al-Quff saw the conducting pores linking arteries to veins, and had a clearer view than Harvey of the capillary vessels that Malpighi discovered four centuries later.

Ibn al Quff was, of course, preceded by Erasistratus and Galen who both admitted the passage of blood between the two systems, but both wrongly believed that blood flew from veins to arteries.

In explaining what I believe is misjudgement on the part of the Western scholars, I shall not accuse them - except one or two - of pretence or bad faith. I shall quote lago Caldston, a distinguished historian who, in an essay entitled "Dark Corners and Obscure Alcoves in Medical History" wrote:

"Except by a few, rather esoteric medical historians, the Arabist period is treated cavalierly. The Arabists, it is said,

were copyists, collators, commentators. They disdained anatomy. They were dabblers in drugs, interested in the exanthemata, and in diseases of the eye. I know that in the Western realm, good Arabists are rare and that this handicaps deep and extensive research in Arabian medicine".

"Yet, even that despite, I fear that some of the Christians' disdain for the infidel taints our evaluation of the Arabists and of Arabic medicine[13]".

This conscientious scholar ended by stating that on re-reading an article of his own which highly praised Rhazes, Haly Abbas, Avicenna, he realized that these were but names to him.

We have a legacy and a reputation to defend. I must praise this country and this centre for undertaking this sacred task. It is not my purpose to disparage Harvey's immortal work. But before and during the Renaissance the movement of the blood and similar anatomo - physiological subjects were the topic of many scientific discussions. Immediately before Vesalius a few anatomists in Italy, of whom Marcantonio della Torre and Berengario da Carpi had attempted a new approach to anatomy. In 1535 Andres de Laguna expressed his disagreement with Galen's view that the pulmonary vein carried blood and air. The glory of uniting into a single stream all the rivulets that his predecessors had failed to bring together, undoubtedly belongs to Harvey, but it does not diminish his debt to his numerous masters and predecesors, among whom one should place the forgotten genius, ^{c}Ala'ul-Din Abdul ^{c}Ela ^{c}Aly Ibn-abil Hazm al-Qarashy al-Damashqy al-Masry, better known as Ibn al-Nafis.

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IBN AL-NAFEES: THE FIRST DISCOVERER OF THE PULMONARY BLOOD CIRCULATION

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An eminent scientist in medicine, grew up in Damascus, at the beginning of the 7th century of Hijra (The thirteenth A.C), then moved to Cairo where he lived all his life, till he died at about eighty years of age.

His biography

He is Alaa-Ed-Deen, Abu-Al-Hassan, Aly Bin Abi Al-Hazm Al-Kurashy Al-Dimashky[1]. He was born in Damascus in 607 A.H. (1210 A.C.) during the reign of King Al-Adel Seif Ed-Deen Al-Ayouby, and he studied medicine in Al-Bimarstan Al-Noury Al-Kabeer[2], in Damascus under the supervision of the two famous professors: Muhazab Ed-Deen Al-Dakhwar[3] and Omran Al-Israeely, who taught many well known physicians, at that time, like the Historian of medicine Ibn Abi Aseiba, the author of (*Eioon Al-Anbaa Fi Tabakat Al-Atibaa*) "The news of the stages of physicians", Badr Ed-Deen Bin Kady Baalabak, Shams Ed-Deen Mohamad Al-Kully, Muwafak Ed-Deen Abd-Alsalam, Najm Ed-Deen Bin Al-Munfakh, Ez-Ed-Deen Al-Sowaidy, and Sharaf Ed-Deen Aly Bin Al-Rahby.

In a time that couldn't be defined exactly, and it is believed to be about 633 A.H. (1236 A.C.) – Ibn Al-Nafees left for Egypt, and lived in Cairo; as a physician and a teacher of medicine, then he became the head of the ocular department (ophthalmologist), in Albimarstan Alnasry[4], and later became the head of the physicians in Albimarstan Almansoory[5]. His famous students were Badr Ed-Deen Hassan, Amin Aldawla, Abu-Al-Kifl Bin Koshak Al-Eskandary. In addition to medicine he taught language and jurisprudence in Al-Mansooria school[6]. Ibn Al-Nafees never married, and this might have helped him to concentrate in his studies and in spending all his time for learning and teaching only.

He was described as tall, thin, very handsome, honorable, respectable, kind, benign, and ready to give advice day or night.

In his home he made sessions which was attended by a group of princes, Al-Muhazzab Bin Abi Halifa – the head of physicians, Sharaf Ed-Deen Bin Al-Sagheer, and prominent physicians.

He was very religious and pious, fearing the Lord in all his walks and talks. It is said that he died of a disease for which some of his colleagues prescribed "wine" as good for that disease, as they claimed, but he refused to take a drop of it saying" "I'll never meet my Lord with a drop of wine in my body."

Ibn Al-Nafees was obedient to his Lord, honest to his religion, and the treasures of earth were opened to him, as well as the doors of knowledge and sciences.

He died in Cairo, at about 80 years of age, in 687 A.H. (1288 A.C.), during the reign of King Kalawoon.

He left all his possessions, his books, his pretty home, ... etc. to Al-Bimarstan Al-Mansoory.

His Age

Ibn Al-Nafees passed his whole life between Cairo and Damascus during the seventh century after Hijra - or the thirteenth century after Christ. This period was characterized by internal troubles in the Arab and Islamic countries far and east. The fire of sedition prevailed every where, and the Crusades attacked Bilad Al-Sham and Egypt, the Romans attacked the ports and the Northern towns, Holako ruined the whole countries and big cities (Baghdad, Aleppo, and Damascus), destroying the centers of Arabic and Islamic civilization, and leaving behind destruction, famines, diseases...etc.

These crises shook the Arabs and Muslims and angered them, and consequently, unified them against the invaders. They stood up facing these aggressions and clearing their lands from this disgrace and shame, they were victorious in many decisive battles with the crusaders and their allies, they freed Al-Qods and Bilad Al-Sham, cleared the Egyptian coast from the foreign armies and defeated Louis IX and arrested him in Al-Mansoura City and defeated the Barbarians in Ein Galot.

The Arabic and Islamic nation has given birth to many of its best men like Salah-Ed-Deen Al-Ayouby, Al-Zaher Bibars, and Al-Mansour Kalawoon who lead the victorious armies.

Another revival coincided with the military revival, that of building of Damascus and Cairo which became the main centers of the Arabic-Islamic Civilization, as they carried the torch which went down in Baghdad, and both cities became the home for the writers, the scientists and the wise men who found peace and security in both cities.

This century (7th Hijry - 13th A.C.) was characterized by an intellectual revolution and the freedom from the slavery of following the instructions of the predecessors, this was clear enough with the eminent scientists from Damascus and Cairo: The first was: Abd-Ellateef Al-Baghdady, who lived the third of this century, and the second: Alaa-Eddn Bin Al-Nafees, who lived all the century.

These two physicians and scientists witnessed the events of that era, suffered its atrocities, and tasted its victorious times, and lived under the umbrella of its just rulers. Thus, we find them free the fetters of the ancients, and they resisted the instructions of Galinos and Ibn Sina.. we'll see this in details when we talk about the theory of Ibn Al-Nafees in the circulation of the blood.

But this political revival, scientific upheaval and construction works did not last long, because of the Ottoman invasion of the Arabic countries, thus the Arabic nation went back to deep slumber.

Then came the European colonization which tried to eradicate the remaining part of the Arabic – Islamic renaissance by looting their heritage, stealing their books and monuments, obliterating the names of their scientists and authors. Among these was the great scientist and the eminent scholar Alaa-Ed-Deen Bin Al-Nafees whose precious books were lost due to the crises, fires and lootings; to the extent that we nearly forgot his name, except for some books that were lost and found by accident by an Egyptian physician when he was studying medicine in Germany in 1924, the late Dr. Mohey Al-Deen Al-Tatawy.[7] This was of great help in regaining the biography of Ibn Al-Nafees to the world; this all was following the discovery of the

manuscript (Explaining the surgery of the Law); "*Sharh Tash-reeh Al-Kanoon*" in Berlin in Germany.

Ibn Al-Nafees: The Scientist Physician

No doubt, Ibn-Al-Nafees was an encyclopedic scientist, knowledgeable, philosopher, genius, linguist, wise, classifier, speaker, excellent physician, oculist, and very famous in medicine. It was said about him "As for medicine, there was no one on earth like him at his time", and "No one came after Ibn Sina like him", and, "In treatment, he was greater than Ibn Sina."[8]

Ibn Al-Nafees had unique style in his researches, no body preceded him except Abd-El-Lateef Al-Baghdady, as he built his theories on observations, experiments and scientific experiences. He had critical thinking and accurate observations which lead to his pioneer medical discoveries and gave him a prestigious position and fame as an esteemed discoverer.

He had an excellent memory, "When he began classification he prepared his sharp pencils and looked to the wall then began to classify from his memory, writing down his flow of ideas, until the pencil was blunt, then he threw it away and took another in order not waste any time in sharpening another pencil".[9]

It was said about him that, "His faculty of authorship possessed him, sometimes, very strongly that he could not get rid of it, as if it were a revelation calling him to write in the oldest places and conditions. Once he went to the bathroom, and suddenly he came out and asked for ink, pen, and paper, and began to classify an article about the pulse, till he finished it, then he went back to the bathroom, to continue washing."[10]

Another proof of his wide range of knowledge and dedication for research comes from the wise man (Al-Hakeem) Al-Sadeed Al-Domiati who said about him in Cairo, and who was one of his students, "Once while I was asleep in his house, Al-Kady Jamal Ed-Deen Bin Wasel came to him, when they finished from praying, they began working on a research, they shifted from subject to subject. While Sheikh Alaa Ed-Deen Bin Al-Nafees was working very hard, without tiring, Al-Kady Jamal Ed-Deen was worried, shouting, his eyes red, the veins of his neck inflating.. and they continued working till dawn, and when finished Al-Kady Jamal Ed-Deen said to him: O Sheikh Alaa Ed-Deen; we have talks, jokes and rules, but you have treasures of sciences."[11]

Ibn Al-Nafees had confidence in his opinions, sure of his words, and he said, "If I did not know that my classifications will not stay ten thousand years after me, I would not have put them down."[12]

This is a short synopsis about the life of Ibn Al-Nafees – his merits, ethics, age, environment, and this is a portrait about his geniality which enriched humanity with a flow of science, knowledge and rich intellectual production.

The medical writings of Ibn Al-Nafees:

Ibn Al-Nafees left behind him a great heritage in different branches of medicine and its instructions. He also explained the writings of the ancient writers in some of his books. He was encyclopedic in some of them and like his contemporary authors, he was also an innovator, and theorist; he had his own theories that differed from the eminent medical authors who preceded him in some of his classifications, explanations and critical writings.

– Following is a summary of his medical writings:-

1- Al-Mojaz fi Al-Tib (Summary in Medicine):

This is a summary to the Law to Ibn Sina (Alkanoon) and this is one of his best classifications of summaries and long writings in the science of medicine, he called it the Summary (Al-Mojaz); but it is in fact complete in medicine, comprehending its laws, rules, and collection of fundamental, scientific and experimental issues.

There are copies of it in Berlin, Manchester, Paris, Istanbul, Cairo, Damascus, Aleppo, and many other capitals of the Arabic and foreign countries.

2- Explanation of El-Canon (The Law of Ibn Sina):

This is written in twenty volumes.

3- Explanation of the Surgery of El-Canon (The Law of Ibn Sina):

This book has a very wide fame all over the world and it made his name everlasting. In it he explained the pulmonary blood circulation very accurately, as we'll see in details, later on.

He began his book by an introduction (to enable the perfection of knowing this art). He meant the (Art of surgery); and he divided the introduction into five parts:-

Part one:- In the difference of the organs in animals.

Part two:- In the rules of the science of surgery.

Part three:- In proving the benefits of organs, which is now called physiology.

Part four:- In the principles by which the science understands the benefits of the organs by surgery, which is nowadays known as Comparative Anatomy.

Part five:In what's Surgery and its Tools.

This book is found in Paris, and I saw nine copies in the National Library in Paris. And many copies in Berlin, The Askorial, Oxford, Istanbul, Cairo, Beirut, Damascus, and Aleppo.

4- Explaining Koliat El-Canoon (Explaining the faculties of law).

5- Explaining Tacdimat Al-Marefa in medicine for Abu-Qrat.

6- Explaining Fosool; Chapters of Abu-Qrat.

7- Al-Mohazab in the Experimented oculistics.

This book is about the eye, its surgery, diseases, health and treatment with medicines and surgery. There is a unique copy of this book in Al-Vatican, another found recently in Al-Daheria Library in Damascus.

8- Al-Kitab Al-Shamel (The comprehensive book in medicine).

This is his largest book; its index shows that if it was re-edited, it will fall in three hundred volumes, and it was written in only eighty volumes, revised and edited just before his death.

Unfortunately most of these eighty volumes were lost, and there are only some papers remaining nowadays in Oxford in the Boldian Library, and an incomplete one in Al-Zahria Library in Damascus, and another incomplete one in Dar Al-Kutub Al-Masria in Egypt.

Ibn Al-Nafees has many other medical books of which are:-

9- ***Boghiat Al-Talbeen and Hojat Al-Mutatabibeen.***
10- ***Boghiat Al-Fitan fi Elm Al-Badan.***
11- ***Rakaek Al-Hilal fi Dakaek Al-Heial.***
12- ***Sharh Al-Fosool Li-Abi Al-Alaa Misaaed.***
13- ***Thimar Al-Masaeel.***
14- ***Kitab Al-Nabat fi Al-Adwia Al-Mofrada.***
15- ***Kitab Mawaleed Al-Thalatha.***
16- ***Jame Al-Dakaek Mina Al-Tib.***
17- ***Kitab Al-Shafy.***
18- ***Risalat Fi Awjaa Al-Batn.***
19- ***Kitab Al-Mukhtar Mina Al-Aghziah.***
20- ***Sharh Masael Haneen Bin Asaak.***

These are Ibn Al-Nafees's medical books, as mentioned in authorized historical resources.

As for his books in other scientific subjects, in which he showed his excellence like jurisprudence, prosody, synteresis, rhetoric, Hadith, Sunna, logic, and mental sciences, they are numerous, and we can't mention them all here.

Ibn Al-Nafees: The Discoverer of The Pulmonary Blood Circulation

Although, the fame and high reputation in Medicine of Ibn Al-Nafees comes from many things, but his scientific description of the blood circulation in the lungs, based on accurate observation and scientific method, was for the first time in the history of medicine. His criticism of the views of Galinos and

Sina and others in this subject, and correcting their mistakes with great boldness and sound logic, make us consider him rightly the first real discoverer of the blood circulation in the lung.

No doubt, the subject of the discovery of the pulmonary blood circulation is one of the greatest events in the history of the world of medicine. In the first half of this century, there was great argument about this matter by the scientists and the historians of medical sciences all over the world.

Thus, I find it necessary, at the very beginning, to mention some confirmed facts about the circumstances and concomitants which accompanied the raising of this great scientific fact, after being forgotten for a long period.

It is known in the books of the history of medicine till especially the year 1924 that the first discoverer of the circulation of the blood was the British scientist W. Harvey in 1628, who explained it completely showing with scientific evidences and accurate experiments.

It is also known that many scientists and philosophers of the Renaissance and doctors in Italy, Servetus and Vesalium and Colombo and Cesalpino... preceded Harvey and shared him the discovery.

Thus, the books of medicine and physiology used to mention, Harvey, and no one, in his research, mentioned the Arabic physician Ibn Al-Nafees in this matter till the Egyptian physician Dr. Mohiey Ed-Deen Al-Tatawey, in his dissertation in the University of Fraeborgh in Germany in 1924, announced that Ibn Al-Nafees had described the pulmonary blood circulation accurately in his book (*Sharh Wa Tashreeh Al-Canoon*),

and he confirmed this fact with a manuscript found in Germany to prove this announcement.

Then came the Orientalist Mayerhof who repeated the scientific fact in a detailed report introduced to the Egyptian Institute in 1931, and in another essay published in 1932 in the Magazine Isis.. thus giving Bin Al-Nafees his due right, but Dr. Al-Tatawey has the first favor in this discovery.

Then came the two Lebanese Doctors Samy Hadad and Ameen Khir-Allah who wrote an essay in English in the Magazine Anals of Surgery in 1936 about Ibn Al-Nafees and his theory of blood circulation, giving evidence from the copy of his manuscript in explaining the Surgery of the Law (*Sharh Tashreeh Al-Canoon*) owned by Dr. Samy Al-Hadad himself in Beirut.

Finally, Professor Leon Binet, the Dean of the Faculty of Medicine in Paris referred to this matter in his book (En marge des congres) published in 1947. Dr. Binet again referred this matter and presented a detailed report to the Academy of Medicine in Paris, with his colleague Herpin – they raised the subject of the discovery of the pulmonary blood circulation by the Arab Doctor Ibn Al-Nafees in session 26 in Tashreen Al-Thany in 1948. During this session a very hot discussion took place and Dr. Laubry defended Harvey very strongly, and he was not ready to accept the confirmed scientific fact that Ibn Al-Nafees has the precedence of this discovery, at the same time, Binet himself was not able to confute his opponents during that session. As a result of this, the books of history kept completely silent about this confirmed scientific fact.

In 1951, I wanted to persue my medical studies in a university in Paris with a dissertation about the Arab physician Ibn

Al-Nafees, and all my provision was the name of Ibn Al-Nafees about whom I knew nothing about.

I sent messages to my professors Dr. Al-Shatty and Dr. Assad Al-Hakeem, who taught me for two years in the Faculty of Medicine in Damascus, asking for their help; they answered me briefly, but directed me to the rich fountain and precious treasure which is the National Library in Paris where I found the authentic, rare Arabic scientific manuscripts on which I depended in my research work.

My entrance to the National Library in Paris was the first step towards the correct path, the straight way... Here I knew that Dr. Al-Tatawey is the pioneer, and Dr. Mayerhof has the greatest favor, because without him, no body would have known, or talked about Dr. Tatawey's paper; as no body would have read it, neither me nor any other person because it was written in German, on a typewriter, and six copies only in 1924, that's why it was not published nor translated, nor known.. in spite of the repeated efforts to publish it, but the great historian Mayerhof gave it its due and even informed Sarton the great historian of medical sciences, who latter published it in the last chapter of his famous book (Introduction of the history of sciences).

In the National Library in Paris, I found that Binet has written twice about this subject, thus I hurried to him, asking for his help. I found him eager to know more about this research, and to find out confirmed scientific proofs to reinforce it, so, he encouraged me to prepare my dissertation about Ibn Al-Nafees, and to submit under his own supervision.

In the National Library in Paris, I also discovered the manuscript of Ibn Al-Nafees (*Sharh Tashreeh Al-Canoon*).

Explaining the surgery of the *Canoon* he simplified his theory of pulmonary blood circulation, with authentic proof which can never be doubted, and which proves my testimony and the testimonies of others who preceded me in talking about Ibn Al-Nafees's discovery.

I photocopied those pages of the manuscript in which Ibn Al-Nafees accurately described blood circulation and proved it. I inserted this part of the manuscript into my dissertation and translated it into French, and I submitted it to the Committee which was headed by Dr. Binet, with evidence that can never be denied, and in front of a crowd of people, that the first discoverer of the blood circulation in the lung was Ibn Al-Nafees and not the British scientist Harvey as some people claimed.

I still remember the words of one of the members of the Committee discussing my dissertation, saying: "You have put in front of us irrevocable evidences through these pages from the authentic manuscript of Ibn Al-Nafees, and translated it in our language to refute any claims, and left no way of doubt about the truthfulness of your case and proved to us, without any doubt, that the Arab scientist Ibn Al-Nafees did precede Harvey with centuries in discovering the pulmonary blood circulation; thus, I congratulate you on your great Arab scientist, and I am proud that you did this in this University, and in this great City which will repeat this great scientific fact and publish it to be known all over the world."

Truly speaking, Paris did repeat this great discovery and shook the dust off these forgotten pages of our great scientific history. Thus the pens were activated to write about Ibn Al-Nafees and to discover him anew. Many exponents began to give him his due and place him where he should be, in the

eminent position that is relevant to his name and works in the history of the great discoverers of scientific discoveries.

The Pulmonary Blood Circulation:-

Prior to our introducing Ibn Al-Nafees's theory about the pulmonary blood circulation, we must mention, briefly, and simply the previous theories of those who preceded him in that subject.. then we go over to his theory which he discovered by his great intuition, sharp mind and accurate observation, then, compare his discoveries with the others' who followed him from the Renaissance of Italians, Spanish and French scientists, to come at last to the scientist Harvey who was claimed to have discovered the whole blood circulation system. In our days, it is well known that the heart muscle is the central pump in the movement of blood, and its circulation is divided into two parts: right and left; the ventricles, and these two parts are joined by ostiums called valves, while the right part of the heart is completely separated from the left part by a very thick septum. It is also known that the complete circulation of the blood is divided into two parts:-

1- The Big Circulation

It starts from the left ventricle and ends in the right ventricle. The left ventricle contracts, so the pure blood saturated with oxygen is pushed by the aorta and the arteries, then distributed to all the systems and organs, then this blood comes back to the right atrium, then the right ventricle by veins containing CO_2 and ejects.

2- The Small Circulation

It is also called the pulmonary circulation which starts from the right ventricle and ends in the left vehtricle.

The right ventricle contracts so the blood saturated with CO_2 flows to the lung by the pulmonary artery where it is mixed with air, then it is sifted and purified, then goes back by means of pulmonary veins to the left atrium in the left ventricle, cure and pure saturated with oxygen (and life).

Let's see how the ancients looked at the blood movement in the body.

In the past, ancient scientists of medicine (Greeks and Arabs), believed that blood is formed from the liver, as the portal vein carries food to it from the bowels after being digested and prepared, then converted into blood, and from the liver blood is distributed by the veins to the body system and organs.

Part of the blood reaches the right heart by the hollow vein and in the right ventricle the blood disposes of any blemishes hung to it, then it is heated and becomes thinner, then goes back purified after this preparatory operation to the veins then to the organs, part of the heated thin blood passes to the left ventricle across invisible passages found in the diaphragm interseptum between the two ventricles. In the left ventricle the blood is mixed with the air coming from the lungs by the artery veins (pulmonary veins), and from this mixture (the heated blood and the air) the soul is born in the left ventricle which in turn distributes it on the whole body by the aorta.

According to this theory, the veins carry the blood only, while the arteries carries the air and the soul, the idea of blood circulation and direction was not known at all, but there was a continuous movement of the blood between tide and ebb, going and coming, as for the lung; it had no function except cooling the hot blood.

This was the current theory, before Ibn Al-Nafees, and this was the concept of the fathers of medicine like Abu-Crat, Galinos and Ibn Sina.

The theories of these great men were shrouded with holiness and esteem, and it stayed for a very long time as everlasting laws, not to be doubted or even discussed, till Ibn Al-Nafees came.. then he broke the wrap and destroyed the numbus and dared to criticize Galinos and Ibn Sina with open views that have no doubt or ambiguity, and with very harsh and strong words, showing his firm belief in his opinion and evidence, as he said: "This is the famous opinion, and it is false." and he further said;" It can't be at all" or "To us, these are supersititions" or "This is apparently falsehood."

The Pulmonary Blood Circulation and Ibn Al-Nafees

Here is what came in Ibn Al-Nafees's book (*Sharh Tashreeh Al-Canoon*) as it is, when he talked about the circulation of the blood in the heart and the lung:-

"What we say, and the Lord knows, as one function of the heart was giving birth to the soul, and it is from very thin blood, mixed heavily with air, then there must be in the heart very thin blood and air in order to make the soul happen from the air with which it is mixed, and this is when the soul is born, and it is in the left cavity from the two cavities of the heart. There must be in the heart of man and the like what the lung has of another cavity to make the blood lighter to mix with the air, because if the air is mixed with blood; which is sticky, it was as a whole of a similar parts, and this cavity is the right cavity of the two cavities of the heart, and if the blood became lighter in this cavity, it

will go through the left cavity where the soul is born. But there is no way between them, in the heart there is no clear way out, as a group thought, and no way not clear good for the flow of this blood, as Galinos thought the bores of the heart are strong and its volume is thick, thus this blood must have been made lighter to flow in the artery vein to the lung to mix with it and mix with the air to be purified and thinner enough to flow into the artery vein to take to the left cavity of the two cavities of the heart, and it mixed with the air and became better to give birth to the soul, what is left of it is less thinner to be used by the lung in its feeding."[13]

In another place he says: "Ibn Sina says - It has three ventricles - this is not true, because the heart has two ventricles only; one is full of blood - the right: and the other is full of the soul - the left. And there is no outlet between them at all, or else the blood would pass to the soul, and spoil its essence. Surgery shows they are mistaken in what they said, as the diaphragm between the two ventricles is very thick in order to keep the blood and the soul separate, that's why it is said:

"Who says that this position is not stable, does not know the fact, and those who believe that the blood in the left ventricle comes from the right ventricle due to this instability, do not know the fact, too, because the flow of the blood to the left ventricle, is coming from the lung, after its being heated and raised from the right ventricle as we mentioned first."[14]

In another place, he ascertains to us that the direction of the blood in its circulation is in one direction and steady; i.e. it passes from the right cavity to the lung where it is mixed with the air, then from the lung to the left cavity. He says:-

"Ibn Sina says - The going of the blood which feeds the lung to the lung from the heart - he means the left heart - this is the famous opinion, but to us.. it is false, as the food of the lung does not reach it from the artery vein - because it is not raised to it from the left cavity from the two cavities of the heart, as the blood in this cavity only comes to it from the lung, not the lung takes from it. As for the flow of the blood from the heart to the lung, it is in the artery vein."[15]

Now we can summarise what preceded from Ibn Al-Nafees, as follows:

1- The blood must pass from the right ventricle to the lung, for ventilation (and the Gas exchanges).

2- The improbability of passing the blood from the right ventricle to the left ventricle through the imaginary passages found in the diaphragm between the two ventricles as was known before, and he denied this completely, and showed that it is completely not true.

3- The blood flows firmly in one direction, as it passes from the lung, coming from the right ventricle, saturated with air, then goes to the left ventricle.

4- He denied the return of the blood from the left heart to feed the lung.

How did Ibn Al-Nafees reach this discovery?

As for how he reached this discovery, no body can say for sure!

Some say, like Mayerhof: "Une heureuse hypotheses"; "this happened as a result of a lucky hypotheses."

Some believe that he used to dissect animals secretly, although he said in the introduction of his book: (We stopped dissecting because of the *Shareeaa* and what is in our ethics of kindness).[16] Maybe he was hiding, from others, what he has been doing, with his saying for fear of the Islamic people who abhorred direct dissection in that time or else what does he mean when he said: "But there is no way out between them, the heart is locked and poreless, no apparent way out as others thought, no hidden way out, as Galinos thought."

How to explain Ibn Al-Nafees's reaching this scientific fact - (that the heart muscle feeds on its own vessels), and he was the first to discover and describe these vessels; no body ever preceded him in that discovery.

How did he know the muscles moving the eye are six, not three, without explaining or proving what he declared?

How did he decide and repeated strongly and daringly: (Its falsehood is clear) and (the diaphragm between the two ventricles is much more thicker than others) and also (Surgery shows their falsehood clearly)?

What anatomy?

– Is it the surgery of Galinos and his predecessors?

He refutes this surgery and calls it false. In another place he says that he believes in the shapes of the inner organs and their positions as they were described by his predecessors, who practiced surgery, especially the honorable Galinos, "except some minor mistakes, we think due to the copier's error, or they were mentioned before checking its observation well."[17]

What observation?

– Is not his own observation that freed him from blindly following those eminent scientists like Abu-Crat, Galinos and Ibn Sina?

How could observation correct big mistakes, and how could anatomy refute untrue descriptions without being built on accurate examination by sight and touch?

He found no embarrassment in refuting others' views, if it is necessary, he said: "As for the benefits of each of these members, we depend, in knowing them, in what need to be investigated straightway, no matter if our predecessors or our successors agree or not."[18]

Being free from following the others, is not new to some Arab scientists; the Arab physician; Abd-El-La-Teef Al-Baghdady, said in his book (Benefit and consideration): "Touching is better than hearing, if Galinos, was primarily accurate in his investigations in what he says, then touching is much more truer than him."

I am inclined to believe that Ibn Al-Nafees did really practise anatomy, and built his accurate observations after investigation and confirmation of what he said; there are many evidences to this:

FIRST:

What he said about the parts of the heart?

A- "Surgery refutes what they said, the diaphragm between the two ventricles is much more thicker than any other".

B- "But there is no outlet between them, the heart is without pores, no outlets to be seen, as the others thought, and no apparent way out, as Galinos thought."

C- "Thus we depended in identifying the shapes of the organs and their positions on what he said (Galinos), except in simple matters which we thought might be the mistakes of the copier, or that he told us about them without having confirmation or observation enough."

SECOND:

He mentioned that the principles of getting knowledge about the benefits of the organs is by surgery, and he recommended the necessity of studying anatomy (especially; comparative anatomy); which he considers necessary to understand the surgery of the human body.

He repeated this idea, and insisted upon it in another manuscript; (The message of the perfect man), in this manuscript he said about the identification of the benefits of the organs in the abdomen and the chest of the animals.

"He opened its abdomen and saw the heart in its chest and its right ventricle full of blood, and its left ventricle full of soul. When this abdomen contracts, the soul flows into the arteries to the organs, then it extends, and the air is drawn to it from the lung".

THIRD:

His writings about the benefits of anatomy, its rules, and tools considering it an art.

The spread of Ibn Al-Nafees's theory:

"What was the impact of this discovery at that time? "How far did it spread in the Arab World from where it broke fort?" Consequently, "How for did it spread in the Western World, which inherited the Arabic civilization, and transported the most precious things from it, then translated to its own Western Languages?"

In the 7th century of Hijra, the 13th A.C., the Arab countries passed through a period of unrest and great turmoils, and the marvelous scientific upheavals which were sponsored by the Ayuobin, both in Damascus and Cairo, were not safe from these turmoils and the aggressions, from within and from abroad.

Intrigues, conspiracies, killing, torturing... between those who were covetous for the throne and the Crusades destroyed everything and left nothing behind them.

The turmoils which appeared in one region of the Arab countries, extended too widely to cover all the other regions. Countries that could not live in peace, or enjoy stability, how could they keep their precious treasures while the rivers had swallowed most of them, and the fires destroyed the rest of them?

Where was the healthy atmosphere to accept new, daring and revolutionary theories like those of Ibn Al-Nafees? Those theories that refuted the two eminent scientists of their age: Galinos and Ibn Sina, and how could one accept them being attacked, degraded and described as false and that their findings can not be true, and even describe their discoveries as illusions; "anatomy refutes what they said", "This is what they have; illusions", "This is not true"... and so on.?

A theory like this can not be successful, unless it appeared in an era of stability and security; ready to discuss, penetrate, think, and assimilate quietly.

Nevertheless, we can not claim that the Arabic environment had neglected, or denied, or was careless towards it. As its owner had all the esteem, but because we lost the previous treasure of Ibn Al-Nafees and most of his writings, especially his huge book (*Al-Shamel Fi Al-Tib*) "The comprehensive in medicine", we also lost the echo of this era of anxiety which followed his death.

In the National Library of Paris, I found an Arabic manuscript repeating the theory of Ibn Al-Nafees; the manuscript number /5776/; it is an explanation of the "Law of Ibn Sina", but unfortunately was incomplete, from its beginning and its end; consequently, it has no author written on it, and no date of writing, too.

In its index, it goes back to the 7th century, and on its cover, there is a writing in both Persian and Arabic that reads as follows: (This is an explanation of a Law. A unique and correct copy, but without an author).

When I read this manuscript, I found that its (unknown) author, when he speaks about the heart, he tells the sayings of Ibn Al-Nafees, with due respect and reverence, calling him (Al-Korashy.. From Koraish), thus he says:- "The late Korashy- may the Lord be kind to him - said..."

He repeats the theory of Ibn Al-Nafees about circulation; exactly as it came in (*Sharh Tashreeh Al-Kanoon*).

As for the impact of this theory in the Western World which inherited the Arabic culture and its treasures, we gather it as follows:-

During my investigations in Paris about the impact of the theory of Ibn Al-Nafees, during the renaissance, this physician was known, contrary to what some people believe; and parts of his book (*Sharh Tashreeh Al-Kanoon*) has been translated into Latin, and was published in Venice in 1547. The physician who translated these parts was an Italian physician; his name is Alpago[21]. He visited Damascus and lived there for some time to learn the Arabic Language, and to read books about medicine, and to correct the translations of Ibn Sina's books which were translated into Latin, at that time.

I must repeat the scientific fact which became axiomatic, no one can deny; which says that the medical institutions in the Western World was teaching, during the Renaissance, the Arabic writings, especially (*Alkanoon*) of Ibn Sina. This book stayed a document in medicine till the eighteenth century; moreover, the Arabic translated writings flowed to Europe like a torrent coming from Spain, Sicily, Salrno in South Italy and from the Arab countries themselves.

Alpago translated many parts of (*Sharh Tashreeh al-Kanoon*) of Ibn Al-Nafees, and in his introduction affirmed that this Latin translation of Ibn Al-Nafees is to be published for the first time, and it was directly taken from the Arabic Original manuscript. These parts, although not related to the circulation in the lung, as the investigators say, were still enough to show the Scientist of the Renaissance in Europe who Ibn Al-Nafees was, and his elevated position.

Following this translation of Ibn Al-Nafees, within six years only, Servetus published his book (Christian restitution) in 1553, where he describes the pulmonary blood circulation, as mentioned by Ibn Al-Nafees, three centuries ago, in shape and meaning.

Mayerhof says: "What astonished me, the similarity between the chapters about blood circulation, and what Ibn Al-Nafees had written in his manuscript, and the similarity of these chapters to what Servetus wrote, too, to the extent that any reader of these chapters will remember the Arabic Book; which was translated into Latin with some art of writing".

In 1555, the second edition of (De humani corporis fabricos); "The factory of human body"; by Vesalius, Professor of Surgery in Yadova University, appeared. In this edition, Vesalius affirms that there is no outlet between the two cavities of the heart, while the researchers see that this idea did not appear in the first edition of this book which was issued in 1542. This means that the idea that "the blood does not flow from the right ventricle to the left ventricle" - which is Ibn Al-Nafees's idea - did not have access to the Italian medical group before, and it was not put in Vesalius' first edition before Alpago's translation which appeared in 1547... In spite of this fact, the books of Physiology and History of Medicine consider Vesalius the first one to describe, and confirm the non existence of outlets between the two ventricles.

Following Vesalius comes his assistant Colombo, the Professor of Anatomy in Badvo University. In 1559, Colombo published a book about anatomy under the name of (*de re anatomica*; on Anatomy). In this book, Colombo explains the pulmonary blood circulation as it came in Servetus's book; and Servetus had lived in Badvo for some time before, without referring to the source of his knowledge from which he copied this scientific fact... Moreover, Colombo himself announced that no body has preceded him to this description, as if he were afraid to be convicted with stealing or copying from Servetus, but Servetus, too, did not mention the source from which he,

himself, took this information, and he did not even refer to the author from whom he copied this scientific information.

It is worthy to note that Servetus was Spanish by birth and knew Arabic, Latin, Greek, Hebrew, and French. He also knew the Arabic authors and their writings very well. Thus, he must have read the works of Ibn Al-Nafees, and his discovery, then began to repeat it wherever he went, either in Paris or in Leon or in Vienna or in Genif, or Badvo.

Finally, Cesalpino, one of the professors of medicine, in Biza, mentioned in his books which were published between 1571 and 1573, short notes and ideas, unconnected about the pulmonary circulation and the direction of blood circulation in the heart and the lung... this ascribed to him the precedence of this discovery, and the books of medical history write about him that he was the first one to refer to blood circulation, because he was the first to use the word Circulation.

We saw how Ibn Al-Nafees was the first one to mention the direction of the blood in the heart and the lung, centuries before, in his book (*Sharh Tashreeh Al-Kanoon*).

– What do we understand from telling these dates? How to explain the succession of events during various years from 1547 to 1559?

– What was the reason of this torrent of books, and this flood of ideas that were roaming around this very particular point?

– How to explain the trial of every body to deny the precedence of his colleagues, and the claim that he was the one who brought these ideas, for the first time, without taking them from someone else?

All this happened, although they all lived in one milieu, and all had known one another, some of them have worked with each other.

Servetus was the contemporary of Vesalius, and later, he became a Professor of Anatomy in Badvo University, where Colombo was his assistant, and working under him, finally Ceasalpino, he was one of Colombo's follower and students..... all these form a complementary unit in work, profession, thinking, and all of them exchange ideas, news, and repeat every revolutionary discovery in medicine, especially the concepts that might affect the known facts or the holy conceptions, like those of Galinos and Ibn Sina.

All this suddenly happened after the famous Bago's translation and its wide spread in Italy, the center of the thinking movement, the medical institutions, and the scientific renaissance, at that time.

Then comes the historians of the medical science, even to a very recent time, and they attributed the discovery of blood circulation in the lung to Servetus, for some time, then to Colombo and his friends for another, forgetting or ignoring the genius who preceded them all by three centuries, and the one who was the source of knowledge out of which they all borrowed.

No doubt that all these scientists have contributed effectively with their experiments on animals, and lateron with their anatomy of man's body, and all of them paved the way, with their works and their ideas, to William Harvey who described the pulmonary blood circulation, very accurately, building on the experiences and experiments of the others, in his book

(*Exercitatio anatomica de monto cordis et sanguiis in animalibus*): "A surgical analytical study of the movement of the blood and the heart in animals" which was published in 1628 in London.

Harvey himself did not refer to the source from which he took this information, although he was affected by the opinions of his predecessor scientists, as he himself studied in Badova University, where all these scientists had paved the way for him.

To sum up, Ibn Al-Nafees was known very well in the West, during the Renaissance; thanks to the translations by Alpago of the Arabic manuscripts; the translations and ideas across the Spanish, French, and Italian scientific institutes, and his theories in pulmonary blood circulation which was quoted or stolen, without any reference to its original owner, either because they wanted to get the precedence, or by ignoring the scientific ethics, which were not adhered to at that time, or fear of the fanatic Christian public opinion which did not accept new theories coming from a non-Christian scientist.[22]

The Other Discoveries of Ibn Al-Nafees

Ibn Al-Nafees had other discoveries, to which no one had preceded him, either from the Arabs or from the Westerners.

He was the first to describe the coronary vessels which feeds the heart muscle. Ibn Al-Nafees in his book (*Sharh Tashreeh Al-Kanoon*) says about the feeding of the heart muscle:

"his making the blood in the right ventricle feeds the heart, is not true at all, the food of the heart is the blood that flows from the veins fixed in it."[23]

Here, he opposes Ibn Sina's opinion, and the opinions of those who preceded him in the matter of feeding the heart muscle, and by this he becomes the first to describe its being fed from its own vessels, contrary to what the historians of medicine claimed; that Eustachi was the first to mention the coronary arteries which feed the heart muscle, and described it.

Ibn Al-Nafees has another precedence, we must not forget to mention...' his description of the capillary vessels, he says: "He also made the artery vessel two layers to make anything that goes out of it must be very thin, and made the artery vessel thin with one layer to make it easy to accept what comes out of the vein, thus he made between these two veins apparent outlets."[24]

No doubt, these apparent outlets or pores between the veins, is nothing but very tiny capillary vessels by which the exchange between the arteries and the vessels takes place, this is what Colombo explained, after Ibn Al-Nafees with three centuries, and claimed that nobody before him has ever discovered, thus it became attributed to him; as the first discoverer, and to Malbiki who proved their existence after he invented the magnifying glasses and the microscope.

These are some of the facts that came in Ibn Al-Nafees's book (*Sharh Tashreeh Al-Kanoon*) about the blood circulation in the heart and the lung, and about the coronary artery, and the capillary vessels.

What precious treasures of our heritage was left for us in the numerous manuscripts which were left to us, and we did not discover their contents, yet.

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التعليقات

١ ـ هكذا وردت تسميته في (النجوم الزاهرة) وفي (مسالك الأبصار) . والقرشي نسبة إلى (قرش) بفتح القاف والراء ـ وهي قرية من قرى الشام .

٢ ـ البيمارستان النوري الكبير : هو المستشفى الذي بناه السلطان العادل نورالدين محمود بن زنكي الذي ملك دمشق سنة ٥٤٩هـ/ ١١٥٤م .

٣ ـ هو مهذب الدين عبدالرحيم بن علي بن حامد المعروف بالدخوار ، رئيس أطباء بلاد الشام ومصر .

وكان قد أوصى بأن تحول داره ، بعد وفاته ، إلى مدرسة للطب ، وأوقف لها مكتبته وأمواله وضياعه ، فعرفت باسم (المدرسة الدخوارية) ، وأنجبت كثيراً من الأطباء في ذلك الزمان .

٤ ـ البيمارستان الناصري الصلاحي ، ويعرف باسم (البيمارستان العتيق) : هو المستشفى الذي أنشأه السلطان الناصر صلاح الدين الأيوبي ، في القاهرة ، وافتتحه عام ٥٧٧هـ ١١٨١م .

٥ ـ البيمارستان المنصوري ، أو بيمارستان قلاوون ، ويعرف باسم (البيمارستان الجلدية) : هو المستشفى الذي ابتناه الملك المنصور

قلاوون ، في القاهرة ، عام ٦٨٣هـ ١٢٨٤م . كما ابتنى فيه مدرسة تعرف باسم المدرسة المنصورية .

٦ ـ المدرسة المسرورية : هي المدرسة التي بناها مسرور الخادم في القاهرة .

٧ ـ أرى من الواجب علي ، في هذا المقام ، أن أحيي ذكرى الدكتور محيي الدين التطاوي الذي لم يسعفه الحظ ، فلم يستطع بعد رجوعه إلى مصر ، عام ١٩٢٥م . أن يتابع بنفسه موضوع كشفه ، إذ عين في وزارة الصحة إثر عودته إلى بلاده . وكان غالباً ما ينقل من بلدة صغيرة إلى أخرى في الريف المصري بعيداً عن دور الكتب والمعاهد العلمية . وتوفي أخيراً ، وهو يقاوم التيفوس في الريف المصري ، عام ١٩٤٥ ، فكان شهيد الواجب والإنسانية . ـ الدكتور بول غليونجي في كتاب (ابن النفيس ـ سلسلة أعلام العرب) .

٨ ـ مفتاح السعادة ـ ص / ٢٦٩/ .

٩ ـ مسالك الأبصار للعمري .

١٠ ـ نفس المصدر .

١١ ـ نفس المصدر .

١٢ ـ مسالك الأبصار للعمري .

١٣ ـ الورقتان ٦٦ ظ و٦٧ ومن مخطوطة باريس ذات الرقم ٢٩٣٩ .

١٤ ـ الورقة ٩٥ ظ من مخطوطة باريس ذات الرقم ٢٩٣٩ .

١٥ ـ الورقتان ٦٧و و٦٧ظ من المخطوطة ذاتها .

١٦ ـ الورقة أو من مخطوطة باريس ذات الرقم ٢٩٣٩ .

١٧ ـ المصدر ذاته .

١٨ ـ الورقة ١و من مخطوطة باريس ذات الرقم ٢٩٣٩ .

١٩ ـ الورقتان ١١٥و و١١٦و من مخطوطة باريس ذات الرقم ٥٧٧٦ .

٢٠ ـ الورقتان ١١٥و و١١٥ ظ من المخطوطة ذاتها .

٢١ ـ حسب الدراسة التي نشرها (أومالي عام ١٩٥٧م .) فإن أندريا الباغو وابن أخيه باولو ألباغو كانا قد ترجما بعض أعمال ابن سينا وابن النفيس الطبية من العربية إلى اللاتينية .

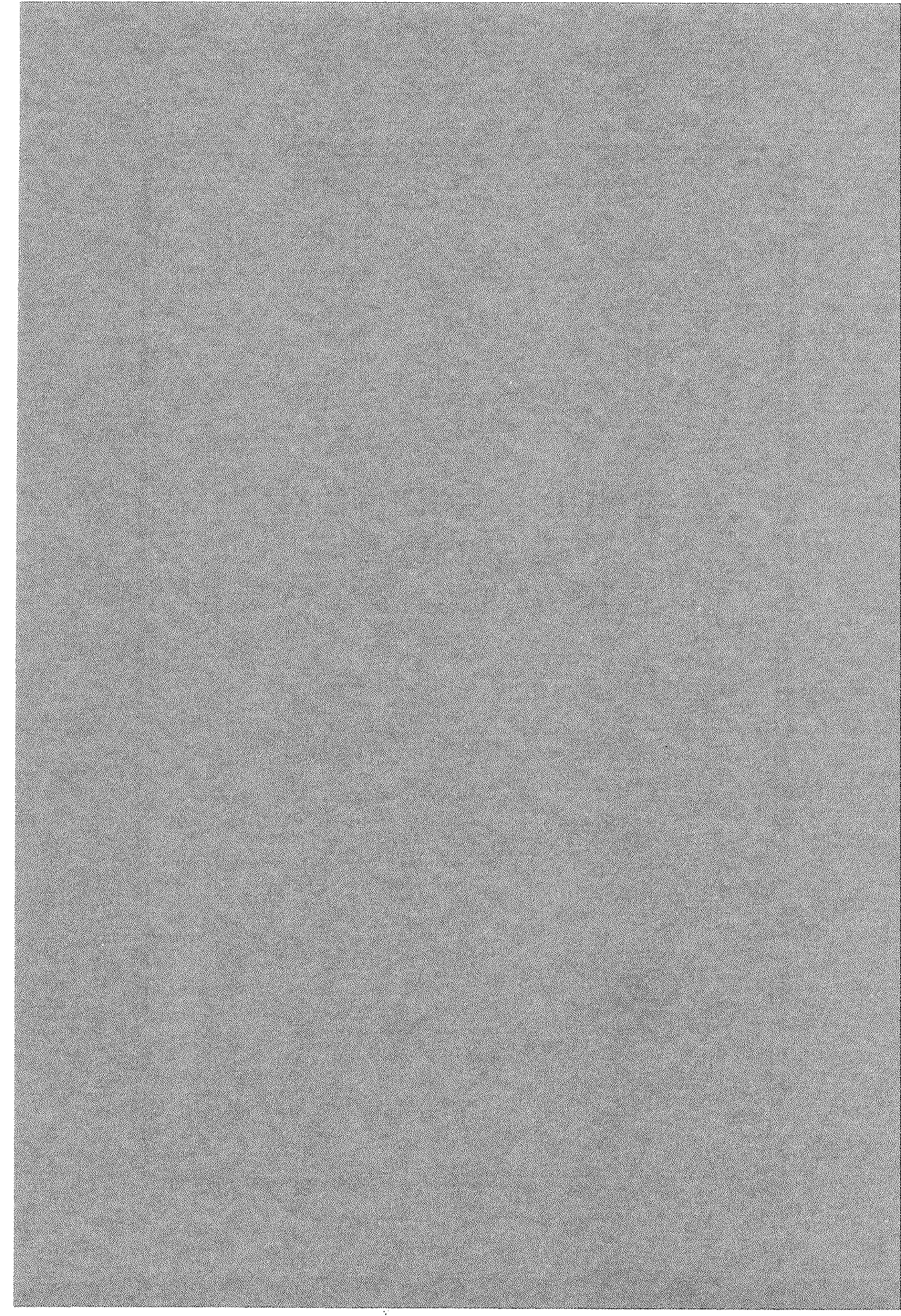
٢٢ ـ الدكتور بول غليونجي في مجلة تراث الإنسانية ـ المجلد الأول ـ العدد الأول (ص٧٦) .

٢٣ ـ الورقة ٩٥ ظ من مخطوطة باريس ذات الرقم ٢٩٣٩ .

٢٤ ـ الورقة ٦٧ ظ من نفس المخطوطة .

IBNUL-NAFEES HAD DISSECTED THE HUMAN BODY

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IBNUL-NAFEES HAD DISSECTED THE HUMAN BODY

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Ibn Sina's "Canon of Medicine" was the main textbook prescribed for many Arabic medical schools all over the Islamic Empire. Those schools were located in the Bimaristans (University Hospitals). However, the book was shunned and criticized by many scholars as Ibn Zuhr who preferred to it the Arjozah (Poem on Medicine), and Abdul Lateef al-Baghdadi who considered it the nonsense he could at last get rid of. Among the book's critics was also the Swiss physician, Paracelse (1493-1541) who burned it along with other books at Bal in Switzerland where he was studying medicine and got dismissed for it. Yet, the book enjoyed a high prestige and was taught up to the 18th century. The last school of medicine where it was used as a textbook was at Tuvan in Belgium. Even today it is still being studied and applied in India by Hakims who practise Unani medicine.

The Canon was the work of a genius who put into it all the medical information available at his time in an exquisitely logical order. As it was beyond the comprehension of beginners the book had to be explained by successive scholars. Therefore, summaries, comments and interpretations of the book abounded.

When Ibnul-Nafees (1211-1288) became well known as a scholar and a professor he, too, had to explain the Canon and write a summary of it. "Sharhul Kulliyyat" (a commentary on the general principles) and "Sharhul Tashreeh" (Commentary on Anatomy) were the two works he wrote about the Canon. About "Sharhul Kulliyyat" he said: "I have written it in the same order of al-Qanoon except where it comes to anatomy and pharmacopeia. I have seen fit to set aside a special book for anatomy to follow commentaries on the other topics of (al-Qanoon) Canon's first volume as the General Principles".*

Thus, Ibnul-Nafess explained the first and third volumes because Ibn Sina had divided anatomy into two parts:

First: What may be called general anatomy, i.e. skeleton, muscles, nerves, etc.

Second: Special anatomy, that is anatomy of each individual member of the body before dealing with its pathology.

"Sharful Tashreeh al-Qanoon" by Ibnul-Nafees was similarly divided into two parts: the first comments on anatomical topics discussed in Canon's first volume, and the second on Canon's third volume.

Ibnul-Nafees's book was not confined to providing explanations, but also contained critical comments on the anatomical information given by Canon. The criticism was levelled at both Galin and Ibn Sina, and even at all preceding writers on anatomy. Sometimes he criticized anatomists without identifying them.

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* He reaffirms the same idea when he says, "In the major book we are writing about the medical profession we intend to simplify, talk about this and similar matters.

I think that Ibn Sina had seldom practised dissection, whereas "Sharhul Tashreeh" contained a great deal of new information in addition to scientifically objective criticism, which indicates that Ibnul-Nafees must have actually practised dissection.

It is curious and worth noting that he says in the book, "The most important muscles of a human body total 529, details of which you will read in a book we are writing on medicine with full investigations into their shapes, functions, tendons, and origins. The forthcoming book will also contain details about proper anatomy since what is said about it here, is short and brief".[2]

Ibnul-Nafees, then, had better things to say about anatomy in another book, which could be "al-Shamil" (the comprehensive) said to be written in hundreds of volumes, 80 of which had been in fair copy at the time of his death.

Some volumes in Ibnul-Nafees's own handwriting are still at the library of Cambridge University in England waiting for the investigator who would shake the dust off them and present to the world the fruit of the genius of this Muslim Arab scholar. There is so much that can be said about "Sharhul Tashreeh". But I have just finished editing the book and am in the process of writing a whole book about it. So, under the pressure of time limit I will have to content my self with taking up one important issue: had Ibnul-Nafees dissected the human body?

There are three different views about this question. The first denies that Ibnul-Nafees or, for that matter, any other Muslim Arab scholar had ever practised any sort of dissection. According to the second view, Ibnul-Nafees had practised dissection, but only of animals, just like Galin. The third view holds that Ibnul-Nafees had dissected the human body.

Among advocates of the first view is the German orientalist, Max Mayerhoff (1874-1945). He said, "In the earlier days of Islamic Shariah, the study of virtually all sciences was permissible. But since the appearance of the renowned Islamic Theologian and philosopher, al-Ghazzali (1111 A.D.), a religious clamp down was imposed on such studies as they allegedly might lead to scepticism in the basic tenets about the origin of the world and the existence of the Creator."[3] Yet, he admits that "this situation was not sufficient to preclude the emergence of scientific thinkers. But the religious oppression was undoubtedly an important factor in stifling their voices".

Mayerhoff, then, asserts that:

1. Islamic Shariah per se did not prohibit the pursuit of knowledge at all. The fact is that nothing in its two sources, the Quran and Sunna, specifically prohibits dissection of the human body for scientific purposes.

2. The reason why scientific studies at that time were meagre was the emergence of Ghazzali and his teachings. It is true that he wrote his famous book entitled "Tahafutil Falasifa" (the collapse of philosophers) but the freedom enjoyed at that time by the scholars prompted (Averroes) to issue his rejoinder "Tahafutil Tahafut" (the collapse of collapse). Ibn Rushd (1126-1198) was a philosopher and a physician. In his book "Fasalul Maqal" (the last word or the final decision) he says, "Knowledge of the ways of creation leads to intimate knowledge of the Creator. The better you know these ways the more intimate your knowledge of the Creator will be. The canonical law of Islam has urged people to ponder everything in existence".[4] "Practice of dissection strengthens the faith", is also a well know quotation from Ibn Rushd.

3. According to Mayerhoff, Ghazzali's teachings did not stand in the way of free thinkers like Ibnul-Nafees.

As a matter of fact, the idea behind prohibiting the dissection of the human body emanated from the common people's reverence of their ancestors and their dead. It had nothing to do with true religion. This is what we can deduce from notes written by Klut Bey, Mohammed Ali's physician, who established Abu Zaabal's School of Medicine in Cairo. There was a strong opposition to including dissection into the school's program and Klut Bey has to take the matter up in a meeting he held with Sheikh Arousi, a leading religious figure at that time. From the notes he took down about that meeting it became obvious that the reason behind prohibiting dissection was fear of stirring up public feelings. In his notes, Klut Bey says, "I think his hesitation to approve (of dissection) was caused by his fear to run up against traditional beliefs more than by scepticism in a line of thought he was half convinced of. What confirms this is that he gave me implicit approval to go ahead with the course but not before making me promise that I should take every precaution to do it in discreet secrecy".[5]

I can personally see a strange similarity and complete identity between the attitudes of both Sheikh Arousi and Ibnul-Nafees. Both approved of dissection but "with great precaution and discreet secrecy" for "fear of running up against traditional beliefs". That is why Ibnul-Nafees said in the introduction to "Sharhul Tashreeh", "We have been dissuaded from actual practice of dissection by fear of violating the Shariah and on account of the mercy that is inherent in our manners".[2]

It is well known that an author writes his introduction only after finishing his book. Ibnul-Nafees might have noticed that

the information provided by his book would clearly indicate that he must have based it on personal experience. Hence, he must have deemed it proper to disclaim any such practice right at the outset by writing this statement in his introduction, especially as the book was esoteric in nature and the few available copies would probably be read by only a small minority of interested people. Mayerhoff, Shacht and others considered this statement as a clear evidence that Ibnul-Nafees had never practised dissection. However, a thorough reading of the book would undoubtedly refute the statement. And when Mayerhoff came to the pages where Ibnul-Nafees described the heart anatomy and the pulmonary blood circulation he did not have the courage to admit his mistake. Instead, he sought a way out by saying that the discovery was the result of a happy hypothesis "which luckily coincided with the facts".[6] Shacht interpreted Ibnul-Nafees's discovery of the minor blood circulation as a result of clever deduction from theoretical argumentation.

Let's now go back to what Ibnul-Nafees said about heart anatomy. He said, "But there is not a vent between them (the heart ventricles). The mass of the heart there is thick with neither an apparent vent, as some thought, nor with an invisible vent through which blood might pass as Galin believed."[2]

I do not want to proceed any further with what is known only too well about the heart anatomy. Suffice it to quote Charles Leschtantiller, professor of medical history at Lousan and Hamburg. He said, "No body could have given such a full description unless he had actually put his finger in the heart cavities."[8]

In the following section Ibnul-Nafees gives himself away when he says, "their claim (meaning preceding physicians and

anatomists) to have dissected and seen what they say they have seen, is something that I do not believe or can be certain about. On many occasions I have seen what disproves their claims which are based on what they have allegedly found out by repeated dissections"[2]. Here, he asserts beyond any doubt that he has seen "differently from what they said about dissection".

The second team of research workers, including colleague Dr. Abdul Kareem Shehada and Dr. Amin As'ad Kheralla, says that Ibnul-Nafees did dissect, but only animals.[6] Galin had previously done that. He based his book of anatomy on what he had found out when he dissected animals. He says, "The system of the animal's body whose members we can identify through dissection looks very close to that of a human body. However, we can easily presume that the bodies of certain animals are by far very dissimilar to man's body. These would include birds, fish, snakes, worms, wasp and bugs."[6] Galin meant that if he dissected animals whose bodies were closely similar to human bodies, he could get a fairly good idea of what a man's body looked like. Galin, therefore, asserts that his anatomical description is, in a way, humanitarian. He says, "It is for man that we have written this book. Our aim is to describe the morphology of his body..."[10]. Again he says, "As for man, for whose sake we have written this treatise..."[10] and "One day we may talk about other animals. As for man to whom we have devoted this book..." The book he meant is "The Functions of the Members" translated by Hunayn Ibn Ishaq. In this book he says, "I do not intend to describe the odaxetic members existent in all animals because I have not in fact mentioned the morphology of any of their members (meaning the animals) unless it was extremely necessary and as a point of departure to describe the members

of man's body. If we are not interrupted by the fate of death we will deal one day with the constitution of animals' bodies with an accurate anatomical description of each member of their bodies along the same lines as we are now following with respect to man's body". Evidence of Ibnul-Nafees's dissection of animals can be found in his criticism of both Galin and Ibn-Sina concerning what they said about bones in the heart. Galin says, "The bones that some people think are found only in big animals and not all animals are in fact found also in other animals, though they are more like cartilage than real bones."[12]

Ibn Sina reiterates the same view adding, "bones have been found in bulky animals, especially in bulls. This bone is rather cartilage-like with larger and stronger types found in the hearts of elephants."[13] Galin had mentioned the elephant's heart saying, "a big elephant was slain in Rome not long ago. A large number of physicians gathered around it to study its anatomy and to determine whether its heart was with one or two caputs and with one, two or three cavities. Before they went ahead with actual dissection I had asserted that they would find the same anatomy as that to be found in all air-breathing animals, which was later established by the dissection they had undertaken. I also found quite easily the heart bones."[14]

But Ibnul-Nafees proved both to be wrong. He says, "This is not true. There are absolutely no bones beneath the heart as it is positioned right in the middle of the chest cavity where there are no bones at all. Bones are only found at the chest periphery not where the heart is positioned."[12]

The advocates of the theory that Ibnul-Nafees had dissected animals thus thought that this excerpt confirmed their

view. The fact of the matter is that there is nothing that looks like bones in the hearts of animals except in anomalous cases which were considered exceptions to a rule. Cuvier, the renowned French zoologist, says, "But this bone is not found in all specimens of the same species of animals. It is nothing more than organic anomaly and cannot be considered a rule."[15]

The third team, including me as well as Dr. Haddad, is of the opinion that Ibnul Nafees had dissected the human body. "Sharhul Tashreeh" abounds with examples some of which we cite here for the purpose of illustration.

Galin says, "The blood reaches the brain itself at the section called forebrain through the durameter which divides the vault longitudinally into two equal halves at the sagittal suture."[16]

Ibnul-Nafees's reply to that is that, "The blood (animal soul) permeates first to the back ventricle (hindbrain) then to the other two ventricles. Dissection confirms this and disproves what they say. The permeation of arteries into the cranium is well known not to be from the front ventricle."[2] Which is quite true.

Another example :

The ancient anatomists considered the cranial nerves to be seven beginning with the optic nerve as they did not consider the olfactory nerve to be a nerve at all, but part of the brain. To them, the fifth pair of nerves is in fact the confluence of facial nerve (seventh in modern numeration) with the sigmoid nerve (8th), that is, these two nerves constituted to them only one nerve, the fifth pair. The sixth pair is the confluence of three

branches: glossopharyngeal (9th), vagus (10th) and accessory (11th). According to the ancient anatomists the three formed one nerve, the sixth pair. Ibn Sina says, "After arising from the hindbrain, the sixth nerve is so firmly attached to the fifth through membranous facia that both nerves look like one. After a short distance it leaves the fifth nerve and emerges as three branches from the (jugualr) foramen at the lower end of the (occipitomastoid suture, a bifurcation of) lambdoidal suture."[17]

Translating this into comtemporary scientific terminology, it means that the ninth, tenth, and eleventh nerves arise from the nerve ganglion. They are attached to the seventh and eighth nerves through membranous facia so that these five nerves look like one nerve emerging as three branches from the back of foramen lacerum. Criticizing this, Ibnul-Nafees says, "About what he said (meaning Ibn Sina) concerning the sixth nerve being attached to the fifth through membranous facia, I have not so far found a good reason for that attachment , and I have not even verified it. This sixth pair both arises and emerges from behind the fifth, so there is no way it could be attached to it".[2]

The criticism is well founded. We should take note of the part where he says, "I have not verified it", which indicates that he must have looked and searched but found it was not true. In other words, he must have dissected that part of the brain and discovered the mistakes of both Galin and Ibn Sina.

I do not think Ibnul-Nafees's description applies to the brain of a sheep as some would like to think that he dissected that and not a human body.

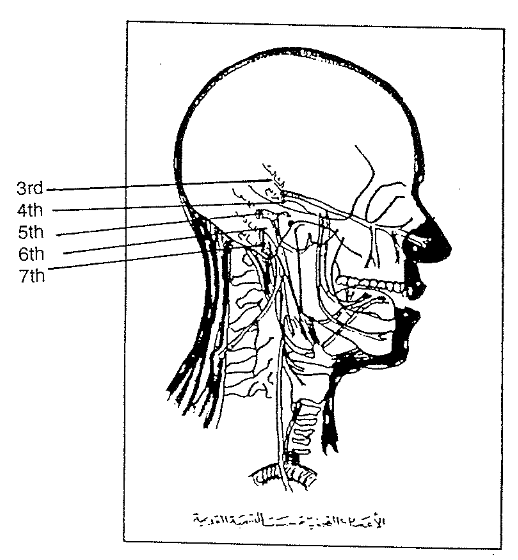
Another example:

Galin says about the anatomy of the bilious canals, "You will find on dissection that the canal extends from the gall bladder to the onset of the duodenum, a little beneath the portal vein. In some animals, you can see the spot where the end of the small intestine gets enlarged around the portal vein. At the same time you will see a small canal going down with the vein extending to the duodenum."[18] Ibn Sina says the same thing, adding, "Most tributaries of this (bilious) canal go to the duodenum. A little sub-branch might be attached to the lower part of the stomach".

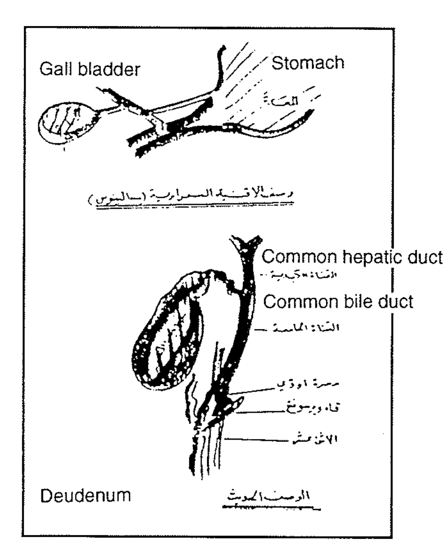
If we turn back to the book written by A. Vesalius[19] (1514-1564), who is considered by the West to be the founder of anatomy, we will find that he made the same mistake. So did Leonardo Da Vinci[20] (1452-1519) in his paintings. They all reiterated what Galin had said, but they were all mistaken except Ibnul-Nafees who says in criticism of Galin, "He (Galin) claims that another canal goes from the gall bladder to the intestinal cavities. This is completely wrong. We have seen the gall bladder several times and failed to see anything going from it either to the stomach or to the intestines".[2] And he is right. He had thus corrected Galin several centuries before Western anatomists.

Another example: The crucifix crossing of the optic nerve:

Describing this nerve, Galin says, "The (optic) nerve comes from the right side of the brain goes to the right eye, and the nerve which comes from the left side goes to the left eye".[21] After reviewing Galin's description, Ibnul-Nafees comments by saying, "In fact it is not like that", but, "each nerve goes to the opposite side".



Cranial nerves according to old nomination.



Modern description

Crossing

التقاطع الصليبي حسب

حسب ابن النفيس

According to Ibn Nafis

Conclusion

The examples I have cited here are very few. "Sharhul Tashreeh", indeed, abounds with criticism, remarks and sights of the anatomy of almost all parts of the human body: bones, muscles, intestines, sensory organs, etc. Each example cited here deserves a detailed and extensive study. However, we can safely say:

1. Ibnul-Nafees had actually dissected the human body, but in secret for fear of stirring up public feelings,. That is why I described in the scenario of the film about Ibnul-Nafees a scene that confirms this.

2. All papers presented so far about Ibnul-Nafees's discoveries are confined to the minor blood circulation. But Ibnul-Nafees has in fact many other discoveries about the bilious canals, the esophagus, the stomach, etc.

3. As said by Ibnul-Nafees himself, "Sharhul Tashreeh" is only a short and brief outline of his view. Further research, therefore, must be carried out to find his other works, edit them and have them published.

4. I believe that Ibnul-Nafees's genius was not less, if not more, than that of Ibnul Sina or al-Razi. He was perhaps ahead of them when it came to discoveries and innovations. He seems to have said, "By God, had I known that my books would be read for the coming two millennia I would not have written them". I think he was wrong there, because we shall continue for a long time to study his works and will always find in them something new.

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THE COMPREHENSIVE BOOK ON THE ART OF MEDICINE BY IBN AL-NAFIS

Dr. Albert Zaki Iskandar
U.K.

THE COMPREHENSIVE BOOK ON THE ART OF MEDICINE BY IBN AL-NAFIS

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Historians of medicine do not know the exact date of birth of [c]Ala al-Din Abu'l-Hasan [c]Ali Ibn Abi'l-Hazm al-Qurashi, known as Ibn al-Nafis.[1] His *nisba,* al-Qurashi, is from his birthplace 'al-Qurashiyya', a village on the outskirts of Damascus. His name 'Ibn Abi'l-Hazm' is recorded in many sources. Some historians, however, claim that they have read 'Ibn Abi'l-Haram'.[2] One may find some justification for their claim: Ibn al-Nafis, like many other authors, did not place the diacritical points carefully on the letters, as is shown in his autograph of the *Comprehensive Book on the Art of Medicine*:

"... The thirty-third volume of the *Comprehensive Book on the Art of Medicine,* written by [c]Ali Ibn Abi'l-Haram *(sic)* al-Qurashi, who is in need of Allah the exalted; may Allah forgive him..."[3]

"... Treatise on plants: the forty-second volume of the *Comprehensive Book on the Art of Medicine,* written by [c]Ali Ibn Abi'l-Haram *(sic)* al-Qurashi, who is in need of Allah the exalted; may Allah forgive him..."[4]

In the above two extracts, Ibn al-Nafis had neglected to place the diacritical points in each of the following words:

kitāb, al-sinā^{c}a, al-tibbiyya, al-Hazm, maqāla, al-nabāt, kitab, al-tibbiyya,ta^{c}āla and Ibn Abi'l-Hazm.

Conclusive evidence that his name is Ibn Abi'l-Hazm (with a *fatha* on the letter *hā* and a *sukūn* on the letter *zāy*) is derived from his own handwriting: He wrote his name with the diacritical points and vowels clearly placed, in an *ijaza* which he had recorded at the end of his well-known book *Commentary on Hippocrates' Book 'Nature of Man'*. This *ijaza* (testimony) runs as follows:

"The eminent Shaykh, physician-philosopher, Shams al-Dawla Abu'l-Fadl Ibn al-Shaykh Abi'l-Hasan al-Masihi, may Allah grant him eternal happiness, discussed with me all the contents of this book of mine, which contains my commentary on the book of the leader Hippocrates, that is his book known as *Nature of Man*. This discussion had revealed the clarity of his mind and the straightforwardness of his thought; may Allah the exalted [help] him to make use [of my book] and render him useful [to mankind]; and so writes ^{c}Ali Ibn Abi'l-Hazam al-Qurashi, a practitioner, who is in need of Allah the exalted. Praise be to Allah for His graces; may He bless his best Prophet Muhammad (ﷺ) and his people; twenty-ninth Jumādā I of the year six hundred and sixty-eight".[15]

In the colophon of Ibn al-Nafis' *Commentary on Hippocrates's 'Nature of Man'*, in this particular manuscript, the following note by the copyist reveals that he had copied directly from Ibn al-Nafis' own autograph:

"...[Transcription of] this book has been completed - from a copy in the author's own handwriting - may his life be prolonged âlā manzilat al-lubūna [sic], on fourth Rabi^{c} I of the year six hundred and sixty-eight.

This was written as an exhortation to myself: Abu'l-Fadl Ibn Abi'l-Hasan al-Katib, a practitioner..."[6]

Ibn al-Nafis was a great physician and a prolific author. He was also a famous jurist. This paper merely presents extracts from his *Comprehensive Book on the Art of Medicine.*

Ibn al-Nafis studied medicine in Damascus, at the Great Nurī hospital, which was founded by Prince Nūr al-Dīn Mahmud Ibn Zankī in the sixth century A.H. / twelfth century A.D.[7] Muhadhdhab al-Din ᶜAbd al-Rahim Ibn ᶜAlī al-Dkhwār (d. A.H. 628 / A.D. 1230) was one of Ibn al-Nafis' teachers in Damascus.[8] Another pupil of al-Dakhwār, also in Damascus, was Muwaffaq al-Dīn Abu'l-ᶜAbbās Ahmad Ibn Qāsim Ibn Khalīfa al-Khazrajī, better known as Ibn Abi Usaybi ᶜa (d. A.H. 668 / A.D. 1270).[9] It has been established that Abu'l-Faraj Ibn Yaᶜqūb Ibn Ishāq Ibn al-Quff Amīn al-Dawla al-Karakī (d. A.H. 685 / A.D. 1286) studied medicine under both of Ibn al-Naf īs[10] and Ibn Abī Usaybiᶜa.[11] It is therefore surprising that Ibn Abī Usaybiᶜa should fail to include a biography of Ibn al-Naf īs in his well-known book: ᶜ*Uyun al-anbā fi tabaqāt al atibbā.* The short account which is to be found at the end of ᶜ*Uyūn al anbā*, only in one manuscript (at the Zāhiriya Library, Damascus),[12] seems to have been written at a later date, and in the past tense. This also shows that the writer of Ibn al-Nafīs' biography was not a contemporary of Ibn al-Nafīs. It is very likely that a former owner of this Zāhiriyya manuscript had recorded the biography of Ibn al-Nafis in order to make his own copy more useful. He made a mistake in mentioning the *nisba* of Ibn al-Nafīs as follows:' ... al-Qarashi, with a *fatha* on the letter *qāf* and a *fatha* on the letter *rā*, from a village near Damascus...'[13]

Ibn al-Nafis was a private physician to the Mamluk ruler al-Zahir Baybars al-Bunduqdārī (*regnabat* A.H. 658 / A.D. 1260-1277),[14] who appointed Ibn al-Nafis as 'Chief of physicians', and eventually gave him authority on all physicians in Egypt. This post was not merely honorific but vested him with full authority to punish practitioners for any slips due to carelessness.[15]

So far students of Arabic medicine have not found evidence from manuscripts that would connect Ibn al-Nafis' name with the Nasiri hospital of Egypt, which is also called the Old Hospital, that was founded in A.H. 577 / A.D. 1181 by the King al-Nasīr Salāh al-Dīn al-Ayyūbi (Saladin, *regnabat* A.H. 564-589 / A.D. 1169-1193).[16] It is worth mentioning that Ibn Abī Usaybi^c^a was an oculist at that hospital during the one year (A.H.634 / A.D. 1236-1237) he had spent in Egypt.[17] When Ibn al-Nafis retired, due to old age, he bequeathed his house and private library - which was full of his own written works - to Dā r al-shifā (House of recovery)[18], also called Qalāwūn hospital or al-Mansūrī hospital[19], after the name of its founder in A.H. 683 / A.D. 1284, the Mamluk al-Mansur Sayf al-Dīn Qalawun al-Alfī (*regnabat* A.H. 678-689 / A.D. 1279-1290).[20] I have already published a list of Ibn al-Nafis' medical writings, and referred to the manuscript-numbers of some of his books that are extant in different libraries all over the world.[21]

In addition to practising medicine, Ibn al-Nafis lectured on *fiqh* (jurisprudence) at al-Masuriyya school,[22] founded by the eunuch Masrūr Shams al-Khawāsī of the Court of Salāh al-Din al-Ayyubi.[23] Ibn al-Nafis also wrote a book on the principles of jurisprudence, entitled *Sharh al-tanbih,* being a commentary on *al-Tanbih fi'l-fiqh* of al-Firūzābādī (d. A.H. 476 / A.D. 1083).[25] The inclusion of Ibn al-Nafis' name in the *Tabaqat al-Shafi^c^*

iyyin al-Kubrā[26] of al-Subki (d. A.H. 771 / A.D. 1370) indicates his eminence in religious law.

Furthermore, Ibn al-Nafis wrote *al-Risala al-Kamiliyya fi'l-Sira al-Nabawiyya,* known by the title *Fādil Ibn Natīq*, a counterpart to Ibn Tufayl's (d. A.H. 581 / A.D. 1185)[28] *Hayy Ibn Yaqzān*. In *al-Ris-ala al-Kāmiliyya,* Ibn al-Nafis contemplated the creation of a human being within a cave in an uninhabited island, in a way similar to that of the emergence of a chick from an egg. The four elements: air, water, earth and fire are acted upon by the four qualities: the hot, the cold, the dry and the wet, and result in the spontaneous generation of man. Ibn al-Nafis' purpose in writing this book is to show the ability of such an isolated man to discover the sciences and wisdom, then to know about the prophecies, the noble conduct of the Prophet Muhammad (ﷺ) and the legal customs.

In this paper I give a short reference to Ibn al-Nafis's great discovery of the pulmonary circulation.[29] It is not at all important whether his great discovery was the result of practising anatomy or using the method of speculation and the correct method of scientific thinking. What concerns us, as historians of Arabic Islamic medicine, is that Ibn al-Nafis had discovered the pulmonary circulation, thus defying the doctrines of Galen himself. Moreover, this discovery of Ibn al-Nafis took place - at least - forty-seven lunar years (forty-six calendar years) before his death. I have found the pulmonary circulation in a copy of Ibn al-Nafis' *Sharh tashrīh al-qā nū n li'Ibn Sīnā* (commentary on anatomy in Ibn Sina's 'Canon'), in MS Ar. 80 (at the University of California, Los Angeles)[30], dated 25th Jumā da 1 640/20th November 1242. I have also provided evidence that some Arab physicians had accepted Ibn al-Nafis blood circulation, since I found it recorded in *Sharh al-qā nū n*

(Commentary on [Ibn Sina's] 'Canon') by Sadid al-Din Muhammad Ibn Mas^{c}ūd al-Kāzarūnī, who completed his commentary in A.H. 745 / A.D. 1344.[31] A few years later, the same pulmonary circulation was also recorded in ^{c}Ali Ibn ^{c}Abd Allāh Zayn al-^{c}Arab al-Misri's *Sharh al-qanun* (completed in A.H. 751 / A. D. 1350).[32] As to the accounts of Servetus (d. A.D. 1553)[33] and Colombo (d. A.D. 1559),[34] these were recorded more than three centuries later than Ibn al-Nafis' discovery. Historians of medicine should, in fact, look for a satisfactory answer to the following question: Did the Latin West have access to Ibn al-Nafis' pulmonary circulation? It is a well-known fact that Andrea Alpago of Belluno (d. A.D. 1520) had lived in Syria for about thirty years, during which he had actively collected and translated Arabic medical heritage. He translated into Latin Ibn al-Nafis *Sharh al-adwiya al-murakkaba* (commentary on compound drugs), printed in Venice (1574), which is part of Ibn al-Nafis' *Sharh al-qānūn li'Ibn Sina* (Commentary on Ibn Sina's 'Canon'). On folios 24 *verso* to 30 *recto* of Alpago's book, which I mention in the following marginal note, the author gives some information concerning Galen's doctrines on the heart and the blood vessels, and adds Ibn al-Nafis criticism of these doctrines.[35]

The Comprehensive Book on The Art of Medicine

In his book *al-Wāfī bi'l-Wafayāt,* Khalil Aybak al-Safadī writes that Ibn al-Nafis "is the author of the *Comprehensive Book on the Art of Medicine*". According to its index, it consists of three hundred volumes... out of which eighty volumes were written neatly by him. These are now [extant], by religious bequst, in the Mansūrī hospital in Cairo."[36] This statement of al-Safadi is also supported by al-Subki who writes

in his book *Tabaqāt al-Shāfi^{c} iyyīn al-kubrā* that Ibn al-Nafis "wrote on medicine, besides what we have already mentioned, a book entitled the '*Comprehensive* [Book]', said to have consisted of three hundred volumes had it been finished; out of these eighty volumes were completed."[37]

Dr. N.Heer made an interesting study of this book[38], and published an article in which he listed its contents and gave references to some manuscripts of the *Comprehensive Book on the Art of Medicine* extant in Public libraries.[39] In his paper, he mentions MS Z276 (at the Lane Medical Library, Stanford University, California). All this manuscript is in Ibn al-Nafis's handwriting. It contains the thirty-third, the forty-second, the forty-third volumes of the *Comprehensive Book on the Art of Medicine.* Some folios of this manuscript are possibly misplaced. It also seems that there are gaps in the text. (I have transcribed a large section of this manuscript).

In practising medicine, Ibn al-Nafis preferred the Hippocratic method to the methods of other physicians. He wrote interesting commentaries on some Hippocratic books,[40] but he did not write commentaries on any of Galen's works. Ibn al-Nafīs's discovery of the pulmonary circulation was by way of criticism of Galen's doctrines.[41] In a section devoted to surgery, in the *Comprehensive Book on the Art of Medicine*, Ibn-Nafīs selects some subject-matter from the Hippocratic book, *In the Surgery*,[42] then he clarifies the selected excerpts through his detailed commentary.

Ibn al-Nafīs believes that for the success of any surgical operation, full attention should be paid during three stages: In the first stage, which he calls the 'time of presentation', the

surgeon diagnoses the affected place. It is called the 'time of presentation' because the patient submits his body to the surgeon, to deal with it in the way he sees right. In the second stage, which he calls the 'time of operative treatment', the surgeon repairs the affected organs. The third stage, called the 'time of preservation', refers to the post-surgical care, a phase during which the patient should take good care of himself. It is also the duty of the nurses and servants to watch over the patient during this period, until he recovers, by the will of God the exalted. For each of these three stages, Ibn al-Nafīs gives a detailed record of the role of each of the surgeon, the patient, and the nurses. He also gives a detailed description of the manipulation of surgical instruments, how these should be properly maintained, and the like. Ibn Sīnā had some influence on Ibn al-Nafis: this is apparent from the logical way of presentation of subject-matter in the *Comprehensive Book on the Art of Medicine.* Following are: the first five *fusūl*, of the third *ta^clim*, of the third *kitāb*, of the first *namat*, of the second *juz*, of the second *fann*, of the *Comprehensive Book on the Art of Medicine.* It is edited here, for the first time, from the autograph of Ibn al-Nafis:

Lane Medical Library, Stanford University, MS Z276, fols, 1b, line 1-fol. 7a, line 11 (see Photographic Palte, no.3)

"In the name of Allah the merciful, the compassionate; from Him I have succour, and on Him I rely:

The third *kitāb* of the first *namat* of the second *juz* of the second *fann* of the *Comprehensive Book on the Art of Medicine.*

In this book, our purpose is to discuss the kind of treatment that is called surgery. It consists of three *ta^calim.* The first

ta^{c}lim is concerned with the general and absolute principles of surgery; the second *ta^{c}lim* is concerned with surgical instruments; and the third *ta^{c}lim* examines the types of surgical operations, one by one.

The first *ta^{c}lim*, which is concerned with the general principles of surgery, comprises twenty chapters.

Chapter one: On the different stages of surgical operations, and the role of the patient in each stage.

The different stages in surgical operations are three: the 'time of presentation', the 'time of operative treatment', and the 'time of preservation'. The first is called the 'time of of presentation', since it refers to the time when the patient entrusts his body to the physician. As long as the physician is examining the patient, and is thinking about diagnosis and therapy, it would be the 'time of presentation'. It is called the 'time of presentation' because the patient entrusts his body to the physician to deal with it as he sees right.

As soon as the physician begins to operate and as long as he is operating, this is called the 'time of operative treatment', which is an obvious matter.

But as soon as the physician finishes the operation and departs, leaving the patient, who should remain in the same condition that was brought about by the doctor, this is called the 'time of preservation'. Both the physician and the patient have specific roles in each of the three stages. Here, we review the role of the patient in each stage separately. As to the role of the physician, this will be dealt with in the next chapter.

As to the patient's role during the 'time of operative treatment', it is also twofold. First, he should expose to the physician all the affected parts of the body, concealing nothing from him. Secondly, he should inform the physician of all the circumstances related to his disease, even if he thought they were very far removed. Thus, of necessity, the physician would have greater and more perfect knowledge of the disease.

As to the patient's role during the 'time of operative treatment', it is also twofold. First, he should comply with all the instructions of the physician, and should not abstain from following them. Secondly, he should keep his body in the same posture that was assumed at the beginning, and throughout the time of operative treatment, not altering the position of any part whatsoever. If, however, the patient could not keep still because of the intensity of pain or because he is infant or a child, and so on, he should be held in a fixed position by somebody else. If it is difficult to keep him still, and it is feared that the patient's disturbance may disrupt the operation - or he may inflict harm upon himself in any other way - then he should be tied down in the most favourable position. For example, the couching operation of the eye, if it is feared that the tip of the needle may penetrate and disrupt the humours of the eye, and in like cases, it would be necessary to tie the patient down in the most favourable position.

As to the patient's role during the 'time of preservation', he should safeguard the physician's treatment, in that, he should not bring about any change, even if it was very trivial; trivial changes may result in great harm.

Chapter two: On the role of the physician during the time of presentation', the 'time of operative treatment', and the 'time of preservation'.

We have already reviewed the role of the patient during these three stages. As to the role of the physician, we say the following:

The role of the physician during the 'time of presentation' is twofold. First, he should do all he can in order to diagnose the disease and its condition. He should exert the utmost effort in trying to learn about this art [of diagnosis]. If he cannot emulate Hippocrates and Asclepius in this art [of diagnosis], then, as the leader Hippocrates has said: "He should know the things that all other people know, that is, what all the people can possibly know". The word 'people', [according to Hipprocrates] means all the men who practice this art [of medicine]. Secondly, he should exert effort in deliberating about the treatment of disease. He should bring his treatment to perfection, so that his therapy may be in the best possible way.

As to the role of the physician during the 'time of operative treatment', he should refrain from performing any act that would justify the statement "treatment would have been better had he left this thing undone', nor should he leave something out that would justify the statement "had he performed this act, treatment would have been more perfect". What is needed is that men who practise this art [of surgery] should do what we have already mentioned; their [performance] will be in accordance with their experience and the efforts they spend.

As to the physician's role during the 'time of preservation', this is limited only to the initial stage, after which he is no longer present [at the bedside], and would be no longer able to pursue the patient's case. At this initial stage, he should recommend to the patient and his relatives: the things that ought to be done and those that ought to be avoided, as well as the patient's diet, how to keep him away from all harmful acts, and to preserve the [surgical] conditions as it was left by the surgeon. They should help prepare the patient for the surgeon's following visits, by [doing such things as] washing the patients extremities, applying bracing perfumes to his nose, and the like. They should administer to the patient those medicines which they can easily handle, as for example, instillation of oil of roses and egg yolk into the patient's eye, after the [operation of] excision of a pannus, and the like. The physician should first instruct them about the method [of applying medicines] and the [proper] time [of applying them], and so on.

Chapter three: On a detailed discussion of the role of the physician during the 'time of presentation'.

We have already mentioned that the physician's role during the 'time of presentation' is to do his best in diagnosing disease, and in deliberating on a genuine treatment. Diagnosis is reached through indicative symptoms. Such symptoms may be auditory, such as the indications obtained from coughs, hoarseness of the voice and its roughness, and so on. Other symptoms are olfactory, such as the indications gained from the smell of the mouth, perspiration, and so on. Other symptoms are visual: these are recognized by looking at the patient.

Disease either affects an external organ, thus appearing to the senses, or an internal organ, such as the liver or the spleen and similar organs, and also general diseases which affect the whole of the body, as in fevers.

If a disease is specific to an external organ, the physician should first examine and investigate the condition of that particular organ. If not, the physician should first examine the patient's face, since it is the best indication of the condition of the body and the internal organs. Whether he examines the face or another organ, he should first find out if it looks the same as that when he was in good health or not. If it looks the same as that when he was in good health, the condition of his health would not have changed considerably, and accordingly, his disease would be slight and benign. But should it have been changed considerably, this would be due to something that had engendered this considerable change from its healthy condition, which would necessitate a stronger and more intense disease. The leader, Hippocrates said: "First examine the patient's face. Does it particularly look like the faces of healthy people? Does it appear as it formerly looked? If it does, he is in the best condition. But the face which appears to the opposite of what it formerly looked is the worst." By this statement, [Hyppocrates] wishes to refer to diseases which do not affect external organs. He also said "First of all, what does it look like and what does it not look like? This is the greatest and the easiest thing; the things that are certainly recognizable in all their types are those that can be sensed by sight, touch, and hearing, the nose, the tongue, and the reason". This means that you should examine the afflicted organ: in what way does it look like or differ from the healthy organ? Primarily, you should do this; for these signs

are among the greatest indications, and the easiest of all things. You should also gather indications from all the things that are, of necessity, recognized from all the types [of signs]; these are the things that are sensed by sight , touch, and hearing; by the nose, the tongue, and the reason. An example of this is the case of a person who suffered an injury that caused dislocation of some of his fingers.

The physician should, therefore, examine his fingers by looking at them. The one which is to be found protruding in the palm of hand and depressed on the outside of the palm is the dislocated finger, since it would look different from the healthy one. Dislocation of the finger occurs when its root has been moved from its [proper] place into the ventral side of the palm, thus protruding at that place and [leaving] a depression on the other side. One knows that the other fingers are not dislocated, because they are in the same condition as the healthy ones. This matter can be ascertained by examining each finger: is its condition similar to that of its counterpart in the other hand? If so, one knows that it is not dislocated; but if it does not resemble [its counterpart], and its position looks different, one knows that the finger is injured.

Chapter four: On relating the things to which the physician should pay attention during the 'time of operative treatment'.

Since it is the physician's obligation - during this time [of operative treatment] - to do what must be done with regard to afflicted organs, then this, of necessity, would be possible if each of the [parties concerned] is in the most favourable

condition: the physician, the patient, and all the other things that are required in operative treatment. The leader Hippocrates determined seventeen conditions that should be considered during operative treatment. We recount here these [seventeen conditions]. He said "as to the things that [should be considered] when the surgeon performs operations in the surgery, these are: "the patient', 'the surgeon', 'his servants', 'the instruments', 'the tools' 'the light', 'where', 'the quality', 'the quantity', 'in which things', 'in what condition', at what time', 'the body', 'the vessels', 'the period', 'the direction', and 'the place'".

By his statement 'his servants', he means those who serve the patient as well as those who serve the surgeon. Both [parties] should respond to the expert surgeon.

By his statement 'the instruments' he means the medicines that he applies in surgical treatment, such as ointments, the [type of] kohl and powders, and the like.

By his statement 'where' he means where in the afflicted organ should operative treatment be conducted.

By his statement 'the quality' he means the quality of operative treatment: how it should be conducted .

By his statement 'the quantity' he means the extent of surgical treatment, or the number [of operations], and the like as we shall explain later on.

His statement 'in which things' means in which organs.

By his statement 'in what condition' he means: what should be the condition of the organ on which he would

operate; or [the condition of] the instruments which he would use, and so on.

By his statement 'at what time' he means the most appropriate time for surgical treatment.

By his statement 'the body' he means the human body: this means that his humours, and the like should be in the most suitable [condition] for operative treatment.

By his statement 'the vessels' he means the containers in which the surgical instruments should be placed as for example the bowl of scalpels and so on.

By his statement 'the period' he means the period of disease, one of the four stages of disease.

By his statement 'the direction' he means the area on which he should act, as for example the area on which cupping instruments are to be placed so as to draw [humours], and so on.

By his statement 'the position' he means on which area he is going to operate. When we deal with each [of the above-mentioned items], we shall explain the necessary considerations that pertains to each item in surgical treatment.

Chapter five: On the patient's posture during surgical treatment.

The posture of the patient during surgical treatment varies according to each case. In some cases, the patient should be kept standing, as for example in reducing a dislocated foot. Likewise, some people prefer to administer cupping on the legs while the patient is in an upright position, so as to allow the

humours to move towards the legs, and then they can be extracted in the process of cupping. Such an action, however, could weaken the patient considerably. Hence it should be restricted to very strong patients.

In some operations, the patient should be in a sitting position, either on the ground, as in cases of the couching operations of the eye, in ophthalmic surgery, and during the administration of cupping on the nape of the neck and so on; or else sitting on a chair as in the extraction of stones, and aborted foetuses, and so on.

In some operations, the patient should be in a reclining position, as in cases of the excision of the pannus and pterygium, and in instilling eye-drops, and the like. In administering blood-letting, it was thought better to keep the patient in a reclining position: in this way, the patient's strength would be better preserved.

In other operations, the patient should lie down in different postures: in administering enemas, some patients should lie on their side, others should kneel on their thighs, and [others] should lie on the belly.

During an operation, the patient should lie in a [certain] position which, if maintained, or if the patient is moved to another posture, this will not bring about any changes in the surgery, already performed by the physician. Besides, the patient's position should be favourable for the physician to operate, and for the patient himself. Furthermore, such a position should allow him, after the operation, to do the necessary things, such as eating and defaecation, and so on. The patient's position should also be one that does not conceal any

part on which the physician needs to operate, otherwise he would be hindered from performing at his best. The leader Hippocrates has said: "As to the patient, he should assist the surgeon with the other parts of his body, standing, sitting, or lying, so as to maintain most easily the proper posture, on his guard against slipping, collapsing, displacement towards the side, pendency, so that the form and kind [of position] of the part treated may be properly preserved during the [time of] presentation, operative treatment, and the state of preservation afterwards".[43] This is what he has said.

We say: by [Hippocrates'] statement 'he should assist the surgeon with the other parts of his body', he means that the patient should not keep any part of the afflicted area out of reach of the surgeon's inspection, but should reveal the entire area to its last part, to be within the hands of the surgeon. By this I mean, the last part of the afflicted place.

By his statement 'so as to maintain [most easily] the proper posture', he means [exactly] what we have already mentioned with regard to the necessity of preservation of the patient's posture throughout all the times [of presentation, operative treatment, and preservation].

By his statement 'on his guard against slipping', he means the slipping of the [reduced] organ, thus remaining diseased, [in the dislocated] position.

By his statement 'collapsing', he means the organs which should be made to settle in place [by means of] splints, and so on.

By his statement 'displacement towards the side, [and] pendency', he means that some of these things could change

their normal positions. The things that are displaced towards the side are the splints, and the bandages; and the things that are exposed to pendency are the bandages which frequently become pendent and lax. This is because organs are mostly finer at the lower parts than at the upper parts. Accordingly, bandages slip downwards in most cases, thus causing relaxation of their tightness. It is impossible for a bandage to slip [from a finer part] towards a thicker part.

By his statement 'so that the form and kind [of position] of the part treated may be properly preserved', he means that the form and kind of position, brought about by the surgeon, should last during the three times [of presentation, operative treatment, and preservation].

Ibn al-Nafis died at dawn Friday, 21st Dhu'l Qa^{c}da 687, in Cairo[44]. (17th December 1288). His friend, Ibn Yūhannā Ibn Salīb al-Nasrānī, an Egyptian Copt, lamented his death, in an eulogy. Here are a few lines of his poem:

"Someone asked if one scientist [remains] or an eminent learned man or one who occupies a high-ranking position, after the death of ^{c}Alā; I replied, while suffering from burning fire within me: Cut it short! Since ^{c}Ala's death, highranking [people] ceased to exist.

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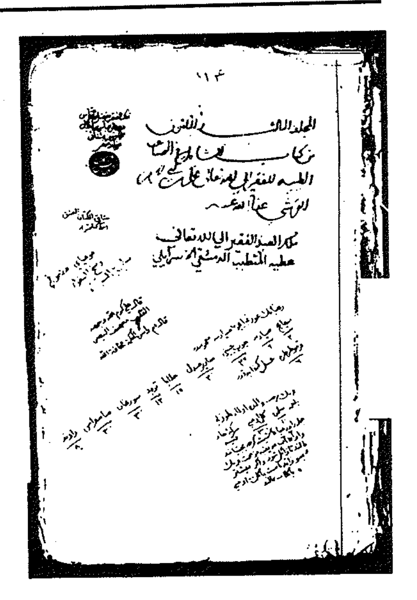
41. AL-SAFADI says in *"al-Wāfī bi'l-wafayāt"* "Ibn al-Nafis detested Galen's views, referring to the prolixity of his style which he described as faulty and futile". See manuscript no. Or. 6587 (British Library), fol. 21a, 1. 3-4.

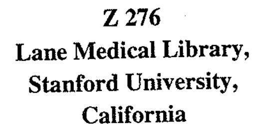
42. In English it is called *In the Surgery*, see the Greek text together with an English translation in : W.H.S. JONES. "*Hippocrates, with an English translation*" (vol. 3 by E.T. Withington), London, New York and Cambridge (Mass.), Loeb Classical Library, 1923-1953, vol. 3, pp. 53-81.

43. Ibid., pp. 60-63: 40-46.

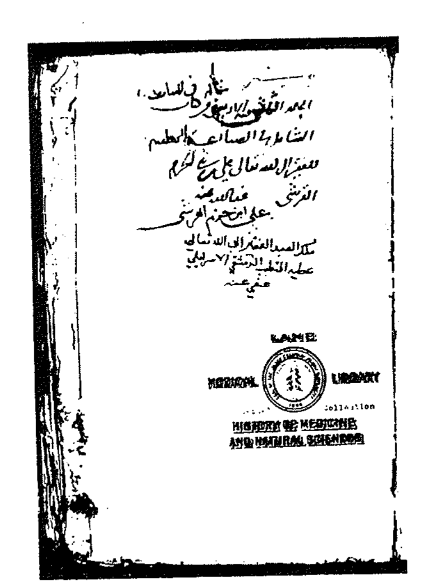
44. AL-SAFADI, *"al-Wāfī bi'l-wafayāt"*, manuscript no. Or. 6587 (British Library), fol. 21a, 1. 7-8.

45. Ibid., fol. 21a, 1. 8-11.





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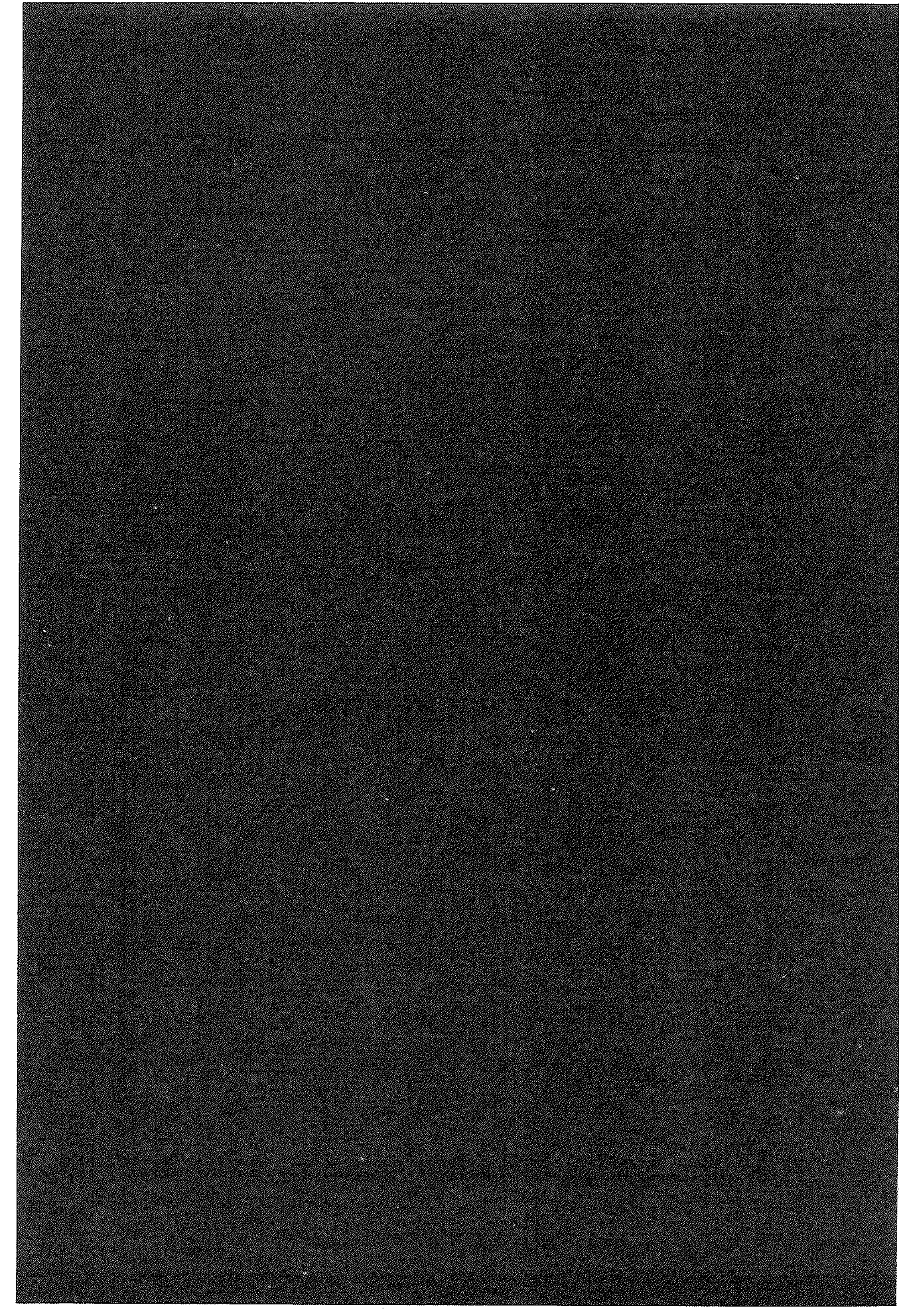
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IBNUL-NAFEES AS A PHILOSOPHER

Dr. Abu Shadi Al-Roubi
EGYPT



IBNUL-NAFEES AS A PHILOSOPHER

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I hope my speech is not a discordant voice in this harmonious song commemorating our great Arab physician, Ibnul Nafees. We live in an age when most doctors know nothing except medicine, and are known by nothing else. Not so were the physicians of the past when a doctor was a "Hakeem" in the full sense of the word combining a general background of knowledge, especially of philosophy, with his medical study and practice.

There is a well known classification of Arab physicians dividing them into the physician-philosopher category, such as Al-Razi, and the philosopher-physician category, such as Ibn Sina. In this paper, I will not try to force Ibnul-Nafees into one or the other of these two categories. All I aim to do is to cast light on part of his life and thought that was not adequately covered by research work. Ibnul-Nafees was not only a great physician and discoverer of the minor blood circulation (pulmonary circulation), but he also had many interests, views and works about many other branches of knowledge. Historians credit him on two books on logic. In the first he explains two of Ibn Sina's works: "Al-Isharat" (The Signs), and Al-Hidayah" (The Guidance). The second book is entitled "Al-Wurayqat" (The Little papers) which is a summary of Aristotle's Organon

and Rhetoric. On linguistics he wrote "Tareeq Al-Fasaha" (Road to Eloquence) and an explanation of "Al-Fusous" (the Segments) by the linguist, Said bin Al-Hassan Al-Rab'i Al-Baghdadi. His books on Shari'a are "Al-Mukhtasar fi Ilm Usoulil Hadith" (A Short Account of the Methodology of Hadith), and an explanation of "Al-Tanbeeh" (Exhortation) by Al-Shirazi, besides "Kitab Fadel bin Natiq" or "Al-Risalah Al-Kamiliyyah fil Siera Al-Nabawiyyah" (the Kamiliyah Treatise on the Prophet's Biography).

It is last work that will form the main topic of my speech today. I intend to use it as an introduction to Ibnul-Nafees' thoughts and as the window through which we can have a look at his philosophic views which are very interesting. I have relied in my treatment of this treatise on the very accurate re-edition by Max Mayerhoff and Joseph Shacht of two MSS one of which is at the Egyptian Public Library and the other at the Sulaimania Library in Istanbul. Their work was published in 1966 by Oxford University under the title: "Theologus Autodidactus".

Since the thought of a thinker are, to some extent, the reflection of his times and surroundings, I deemed it necessary to pave the way for my article with a brief account of Ibnul Nafees's social, political and academic background.

You all know that Ala-u-ddin Ibnul-Nafees, also known in the biographies as Ali bin abil Haram Al-Qurashi Al-Dimashqi, lived and died in the 7th century A.H. (13th century A.D.). He lived to be around 80. He was brought up in Damascus where he studied medicine under the city's great physician Muhazzabul-Din Al-Dikhwar. Then he departed to Cairo where he stayed for the rest of his life in a house of his own. He took

up the medical profession and proved to be so talented that he became Chief Physician in Egypt and the court physician of its ruler, Al-Zahir Beibars l-Bindaqdari. He used to teach medicine at the Mansuri Bimaristan (Hospital), established by Al-Mansour Qalawoun, the army leader who succeeded Beibars on the throne. In the meantime, he taught Shari'a and jurisprudence at the Masruriyyah School about which Al-Maqreezi said in his "Khutat" (Layouts) that it was established by Shamsul Khawas Masrour, one of Salahu-ddin's followers.

No wonder, then, that Ibnul-Nafees is referred to as one of the leading jurisprudents of the Shaf'i rite of fiqh in Tajul-din Al-Subki's book entitled "Tabaqat Al Shaf'iyyah Al-Kubra" (the Upper Levels of the Shaf'i Rite).

At that time, Egypt and Syria were united into one country ruled successively by the Fatimids, the Ayyoubis, and the Memlouks. Among these were Qutuz who conquered the Moguls at Ein-Galout, Beibars and Qalawoun who descended from the Turks of South Russia and Caucasian tribes known as the Kipchak. During their reigns there were ambassadorial and trade relations with Barakah, the Khan of the Golden Horde.

We now turn to Ibnul-Nafess's "Kamiliyah Treatise" for summary of its history and outline before going into details about the thoughts and views expressed therein.

Ibnul-Nafees wrote this treatise, also known as "Fadel bin Natiq", not as a parody of "Hayy Ibn Yaqzan" by Ibn Sina as stated by Al-Safadi in his book "Al-Wafi Bil Wafiyat". In plot and content it is more similar to "Hayy Ibn Yaqzan" written by the the Andalusian physician and philosopher Ibn Tufayl a century earlier. Undoubtedly, Ibnul-Nafees must have read it and been influenced by it.

A contrastive study of these three treatises will cast an illuminating light upon Arab thought in its golden age which, as you well know, was preoccupied with reconciliating religion and philosophy and revealing the common grounds between Sahri'a and wisdom as Ibn Rushd says in his Faslul Maqal (Final Conclusion).

Therefore, we find that Ibnul-Nafees attempts in his treatise to establish that the human mind in its logical thinking and without any other agent is capable of deducing the necessity of God's existence and the successive messages of the prophets till the last one of them. Furthermore, it is capable of predicting the life story of this last prophet (ﷺ) including his birth, emigration to Mecca, His jihad (holy war) and death in addition to the jurisprudence, Shari'a and transactions contained in His message. Even more, Ibnul-Nafees claims that by sheer reflection it was possible to expect the disputes that arose between the Khalifas of this last prophet (ﷺ) and the multiplicity of sects and methods in his religion. It was also possible to expect the aggression suffered by his followers at the hands of the atheists and how they would finally repulse it. Then Ibnul-Nafees extends his view to the far future (or, perhaps, the near future) to describe in pure mental terms the end of the world, doomsday, resurrection and the Hereafter.

This, then, is a tour de force around the realms of natural philosophy, the philosophy of history and sociology, and the philosophy of religion. In this treatise there is a bit of everything: biology, geology, cosmology as well as futurology.

Ibnul-Nafees has equipped the hero of his treatise, Kamil, with such mentality. Kamil, so the story goes, is a man brought forth to this world by spontaneous generation and lives on a

deserted island in utter seclusion. As for "Fadel bin Natiq", it is only a narrative of Kamil's life and views.

There are many similarities and dissimilarities between the two treatises of Ibnul-Nafees and Ibn Tufayl; between Kamil's thoughts as narrated by Fadel bin Natiq and thoughts of Hayy Ibn Yaqzan. Both try to establish that a spontaneously generated human being living on a deserted island is capable of hitting upon the natural, philosophical and religious truths of this universe through the sole agent of his mental contemplation. It is thus an attempt to bring religion in harmony with philosophy as we said before. To do this, however, both authors had to postulate two things unacceptable to true religion: the possibility of originating life on earth through a process of spontaneous generation, and the possibility of reaching the truths of religion through sheer contemplation without any other agent.

As for the dissimilarities between the two treatises, they are quite a lot. Ibn Tufayl's hero begins as a baby brought up by a female gazelle. Kamil, on the other hand, begins his life at the age of puberty. The former discovers by himself the use of fire, cooking, and dressing himself in clothes; the latter learns about these things from visitors who come to his island and tame him. Here Ibnul-Nafees makes a point of stressing that civilization comes as a result of human contacts. The advent of visitors to the deserted island is used by both authors for different purposes. While Ibn Tufayl makes them bear witness to the truth of what his hero managed to learn independently through his own thinking and contemplation, Ibnul-Nafees makes them the means of Kamil's passage to the outer world where the scope of his vision becomes wider and where he can see the confirmation of what he has individually learned.

In general, we can safely say that Ibn Tufayl was inclined in this treatise towards Sufi contemplation, whereas Ibnul-Nafess's tendency was towards mental philosophy. But the distinguishing feature of Ibnul-Nafees's treatise that makes it more peculiar is its outlook to the future and its delving into matters of human destiny. It is not merely a treatise on the biography of the prophet (ﷺ) but goes far beyond that to the wider range of the human biography; the Homo Sapiens; his past, his present, and his future.

So much for a comparison between the two treatises. Let's now turn to a more detailed review of Al-Kamiliyah Treatise. Ibnul-Nafess says:

> "My purpose in this treatise is to relate what Fadel bin Natiq narrated about a man called Kamil with regard to the prophet's biography and the norms of the canonical law in general terms, ordering my narration into the following four arts:
>
> First, the way this man called Kamil took shape and came to know about the truths and prophetships.
>
> Second, how he got to know about the prophet's biography.
>
> Third, how he came to conclusions about the norms of the canonical law.
>
> Fourth, how he could predict what would happen after the death of the last Prophet (ﷺ) and upon all His predecessors".

FIRST ART

In the first chapter Ibnul-Nafees tells us how the man called Kamil takes shape by spontaneous generation. He says: "Once upon a time there was a huge inundation in an island of mild weather, lush with fruitful trees. The torrential stream carried with it multifarious muds washed out of a variety of soils that were flooded by it. Part of the stream water seeped into a cave in a mountain and filled it. Under the heat of the cave, the water which mixed with the soil reached the simmering point until it thickened into clay from which various limbs and organs could take shape owing to the variety of the soil from which the clay was formed. From this heated clay vapours emanated. From one of these vapours, which was as mild as air, human soul was formed giving a human being his complete and final form".

"But that human being spontaneously generated in a cave is different from any one born in a womb in that he has been feeding and growing in the cave for a much longer time, just as a chick feeds in an egg. So he emerges from the cave a full grown boy with a strong body and sharp perception".

This, then, is Kamil, the hero of the story. How he gains knowledge and wisdom is dealt with in the second chapter which Ibnul-Nafees sets aside for what is termed in philosophy as "epistemology" conceived of by Ibnul-Nafees as a blend of empiricism and teleology. When Kamil gets out of the cave he beholds the vast space, the dazzling light and lush trees. He hears the singing birds, the rippling water and the rustling wind. He smells the fragrant flowers and tastes the delicious fruits and feels the hot and cold air. In short, his first contact with his surroundings is through his five senses and what they perceive

of the outer world. Soon, he turns to experimentation. "He ripped open the bellies of such animals as he could lay his hands on or those that he found dead. He did that with no other tool except his finger-nails or sharp-pointed stones. Thus he learned a lot about the functions of the animal organs (physiology). Then teleology followed, through which he learned that each part of an animal or plant was there for a specific purpose and nothing was there purposelessly".

"Then he began to wonder if the existence of these creatures, so perfectly designed, was of their own making or the making of a Creator. If it is by a Creator, who this Creator is and how He looks like.

Following a logical line of thought he came to the conclusion that the Creator of what is possible must be impossible to create. That is, He is a Creator whose existence must be prior to anything that exists; and He must be omniscient and omniobservant. "Otherwise, there would be an infinite chain of causes and effects".

It is clear how much Ibnul-Nafees depends on Greek philosophy for proving God's existence. He employs the notion of "the prime mover unmoved" and cautions against falling into the contradiction labelled by logicians as "infinite regress". In general, he argues from the premise known by theologians as "The Argument from Design".

In the third chapter Ibnul-Nafess resorts to a narrative technique that enables him to tackle sociology after covering nature and epistemology. He says: "It so happened that a ship packed with merchants and other passengers was stranded on the island. Waiting for the dented ship to be repaired, the passengers had no other alternative but to stay on the island.

They fanned out in search of wood for their fire and fruits for sustenance. Catching sight of them, Kamil shyed away at first. They offered him a piece of bread and a little of the food they had carried along with them. Nibbling at this, Kamil liked the taste of it especially as he had never experienced man-made food before.

Gradually, he began to feel at ease with them. They dressed him in clothes and laboured to teach him their language. By and by he picked up a lot of it. It was then possible to tell him about their cities and ways of life, at which he was utterly amazed as he never imagined there could be land beyond this island. He became so curious to know more about their world that he wished to go with them. They took him to a town near the island. He lived among the people of that town, eating their food and wearing their clothes. He felt so happy especially when he recalled the coarse and primitive life he had led on the island. The experience taught him a lot. He learned that living alone without such man-made food and man-made clothes could not be a pleasure. He learned that in order to be civilized man must live in a community of inter-dependent people some of whom would undertake to till the land, others to cultivate it, others to bake and others to make clothes, and so on".

Here is a clear difference between Ibn Tufayl and Ibnul-Nafees in how each views "Robinson Crusoe". Ibnul-Nafees stresses that for man to be civilized he must live in an integrated community where individuals must share work responsibilities.

This opinion is as old as the Greek thought voiced before Ibnul-Nafees by Al-Farabi in his Utopia and later adopted by Ibn Khaldoun when he described man as civilian by nature.

After establishing the logical necessity of deity, Ibnul-Nafees goes one further step to establish the necessity of prophetship.

"In this contemplation, Kamil said to himself: If for a nice life one needs this (i.e living in a community), then one will inevitably need to have various transactions with others such as selling, renting, etc. Such transactions must eventually lead to disputes with personal interests subjectively used as the only criteria for determining what is right and what is wrong. Therefore, in addition to living in a community, happiness cannot be realised unless this community is governed by established laws that are accepted by everybody and by which every body abides and every dispute is settled. Now, for these laws to be unquestionably accepted by the community, everyone must firmly believe that they are enjoined by God the Almighty. For people to believe that, it must be told to them by a person whose truthfulness nobody doubts.." Describing this person he goes on to say: "He must be a person of such miracles as would make people feel that what he says cannot be false but true revelations from God the Almighty. The person that fits that description must be the Prophet (ﷺ) as it would be inconceivable that God neglects the creation of this prophet of such immense benefit when He cares to create, among other things, the pubic hair of much less importance!"

At this juncture, I would like to set on record an opinion mentioned by Meyerhoff and Shacht to the effect that by claiming that man can spontaneously, and without any agent, get to know about God's existence, and by stressing the necessity of prophetship, Ibnul-Nafees adopted the Matridian point of view; and by so doing he was closer to the Hanafi rite of fiqh than to the Shaf'i rite to which he actually belonged and which was nearer to the Ash'ariyah.

SECOND ART

Ibnul-Nafees devotes the second part of his treatise to the biography of the last one in the string of prophets: his ancestral line, birth place, upbringing, description, age, and offspring. He tries to establish how Kamil managed by pure mental contemplation to determine the attributes of this prophet until he comes to the 9th chapter about the name of this prophet when Kamil was almost certain that the name must be "Muhammad" (ﷺ).

It will not be possible, spacewise, to review this part in great detail. So, a brief presentation may suffice for following the logical sequence of Ibnul-Nafees.

About the genealogy of this prophet, Ibnul-Nafees says that he must be of such noble origin as would make people submissive and obedient to him. Now, there can be no nobler origin than that of God's Messengers, and no better one of those than that glorified uniformly by all religions, namely, Ibrahim (عليه السلام). Therefore, the Seal of the prophets, Muhammad (ﷺ), must descend from him and not from Jacob or Jesus as he should belong neither to Judaism nor to Christianity; otherwise, people would reject him as a blasphemous innovator. The Seal of the prophets, then, must descend from the offspring of Ismael. The noblest of those are the Hashimites to whom his lineage can directly be traced.

As for his birth place, it could be deduced by Kamil through an interesting chain of syllogisms:

1) Bedouins, or Arabs of the desert, are of less developed minds than those who live in cities. Therefore, this prophet must be a city-dweller.

2) Cities compare favourably with desert areas in such matters as mild weather, low prices, abundance of food and water, etc. But the greatest advantage that tips the balance towards a city is religious grandeur in the hearts of the people specially if that city contains a sacred place of worship. Now, the best and oldest such shrine is Al-Kaaba honoured as the first House of God laid for people. It follows, then, that the seal of the prophets (ﷺ) must be born in Mecca.

3) If the prophet (ﷺ) had died in Mecca and was buried there, then visiting his grave would look as if it was secondary to visiting Al-Kaaba. In the course of time, people would think that pilgrimage to Mecca was for the sole purpose of circling Al-Kaaba and would eventually forget about the prophet (ﷺ) and his mission. Therefore, it stands to reason that his grave should be in another city so that travelling to it would be for the sole purpose of visiting his grave, and his greatness would thus be preserved.

4) The prophet's (ﷺ) departure from Mecca cannot be of his own choice; it must be out of necessity. Nor can it be a kind of banishment or the result of defeat in war as it does not become a great man. It could only be an emigration to evade a conspiracy to kill him in secret by the atheists.

5) To which city should he emigrate? Undoubtedly to that city where his father died so that if he himself died there his grave would be near that of his father. The city, then, must be Yathrib.

To be short, this is a model of the logical sequence of finality used by Ibnul-Nafees through personifying the character of Kamil in order to reach these conclusions.

Using the same method, and from the premise that this prophet (ﷺ) must be extremely moderate in temperament and manners, Kamil comes to the following conclusions:

1) The prophet's (ﷺ) father must die first, to be followed by his mother, so that he could be fostered by a woman other than his mother and brought up by his grandfather and uncles. All this must happen to make his temperament and manners influenced by his foster-parents.

2) The prophet (ﷺ) must be physically symmetrical with a smiling and cheerful face. He must be of sharp perceptions, intelligent, and eloquent as these are the attributes of moderate people.

3) A body of medium strength is usually more susceptible to sickness. The prophet (ﷺ), therefore, is liable to frequent ailments, but his diseases would be short-lived and easily curable.

4) As for his age, he must reach full maturity so that his prophetship may take the required time. Yet, he must die before reaching the age of senility when judgement is impaired. In moderately tempered bodies this optimal time of death is put at the age of 62 or 63.

5) As this prophet (ﷺ) is of moderate temperament, he must beget sons and daughters. The sons should not live long enough to reach the age of prophetship; for they cannot be prophets when their father is the Seal of all prophets. However, not to be prophets would undermine their father as most of the prophet's sons were themselves prophets. As for the daughters, they might live as long as they could because women were not entitled to prophetship.

THIRD ART

In this section of the treatise Ibnul-Nafees discusses, through Kamil of course, the essence of the religious creed. He says: "The prophet (ﷺ) should tell the people that they have a Maker, and that this Maker is infinitely magnificent and glorious and must be obeyed and worshipped. He should tell them that there is no God but He and that there is nothing like Him, the All-hearing and Omniscient. He should tell them all the attributes of God indicating His Supremacy and complete Ability. But since the prophet will be addressing himself to a majority of common people he should not delve deep into details beyond their understanding such as saying to them, "God the Almighty is neither inside this world nor outside it. He is not an object, nor is he a tangible form. He is not in a certain direction, nor can he be perceived by any one of the senses. "Such talk would necessarily make people confused and disarrayed, which defeats the primary purpose of prophetship. Therefore, the prophet must refer to these matters in general terms leaving out details. However, he should not neglect details per se but should make his words lined with such esoteric symbols and indications as would give the small circle of disciples and followers an inkling to the full details, yet on the face of it his words would not lay demands on the modest understanding of the common people.

It is clear from the above that Ibnul-Nafees takes it for granted that there are common and special people, So, in matters relating to exegesis of the Quran he steers a middle course between two schools of thought in Islam: al-Zahiriyah, characterized by giving the apparent, literal meaning, and al-Batiniyah, characterized by divining the hidden, secret meaning in the revealed texts. Yet, he does not indulge in Sufi contemplation as it is the case with Ibn Tufayl.

Then Ibnul-Nafees takes up the question of Resurrection. He says that Kamil thought that the prophet should mention it. But he was not sure how it should be presented to the people. Should the prophet say it will be a resurrection of the soul, of the body, or of both. At this juncture, the author faces a problem that is as old as philosophy itself; namely, the relation between mind and body, or between spirit and matter. Kamil says that the prophet should not make resurrection purely spiritual as most people would fail to conceive spiritual joys and pains. Meanwhile, resurrection should not be presented as purely physical as it would deny both happiness and misery. It should be a resurrection of both body and soul.

I would like here to quote Ibnul-Nafees concerning this problem which still preoccupies philosophers even today.

"Kamil said to himself that man must be made from a body and a soul. The body is that perceptible object, but the soul is what a person refers to when he says "I". This referent should not be the body or its parts as everyone necessarily knows that he is what he is throughout his life, which cannot be said about the body or its parts. Man's body during childhood is not that of old age. The same applies to the parts of the body. Both the body and its parts are in continuous state of dissolution and nourishment, so they are inevitably undergoing permanent change. As for the referent "I", it is a constant. The corollary is that one's soul must be something different from one's body which is a tangible object whereas the soul is an abstract substance that can be a form; for the body can be valued only by itself, but forms cannot be valued except by substances."

You can see how much novelty and peculiarity this line of reasoning carries with it. But I would like to draw your attention to that part of the quotation which says: "Both the

body and its parts are in a continuous state of dissolution and nourishment, so they are inevitably undergoing permanent change"; for this has become now a granted fact in physiology and biology expressed by the term "metabolism" which comprises the two processes of: catabolism, by which living matter is broken down into simple substances, and anabolism, by which food is built up into living matter.

Philosophers have always tackled the dichotomies of matter and mind, body and soul, form and substance, the perceptible and the conjectured, the concrete and the abstract. But talk about philosophy always takes on a special flavour when the speaker is a scholar or a physician.

Reflecting on the worships, Kamil thought that the prophet should enjoin that his teachings be repeatedly mentioned so that they remain alive in the minds and hearts of his followers. This repetition can be effected in five ways: individual utterance of the two Islamic doctrinal formulas (That there is no God except Allah, and that Mohammad (ﷺ) is his Messenger); through a pure physical act such as prayer; pure physical abstinence such as fasting; or the act may be purely financial such as alms-giving; or combining physical with financial such as pilgrimage.

Of these five pillars of the religion, pilgrimage is the most onerous, so doing it once in a life time will be quite enough. Prayer is the easiest, so people can be made to repeat it several times a day to be reminded of God and his Messenger (ﷺ). Fasting and alms-giving are midway between these two extremes; so each should be enjoined only once a year.

Kamil applies the same rationalism when he considers the financial transactions among the people. He says that a male's

share in what is inherited should exceed that of a female though men are normally better able to earn money than women. But when a woman gets married it is the husband who supports her. Concerning marriage, Kamil thought that female polygamy would naturally lead to confusing lineage whereas male polygamy will not. Therefore, the prophet (ﷺ) should legalize polygamy for men and prohibit it for women.

FOURTH ART

This fourth and last section of the Kamiliyah Treatise is found only in the MS kept at Istanbul, but missing in the MS of the Egyptian Library. The Egyptian copy, which is much earlier than the Turkish one, is believed to have been written in Ibnul-Nafees's life time. This fourth part might have been deliberately dropped as it dealt with politics and the rulers.

In the initial chapters of this section, Kamil predicts the events that will take place after the death of the Seal of the Prophets (ﷺ). First, there will be a power struggle among the prophet's companions. Secondly, there will be difference in opinions, multiplicity of methods and division of the prophet's creed into various sects each having its own methodology on which books are to be written and for which schools of thought will be established. Thirdly, there will be deviations from the teachings of this prophet (ﷺ) who prohibits liquor drinking, as it is hazardous to mental health, and forbids women to appear unveiled before strangers. Finally, there is the punishment for this deviation which will take the form of raids on the followers of this religion by the atheists.

In all predictions and their underlying rationale, Ibnul-Nafees emerges as a philosopher who believes in

historicism or historical determinism. It means that history is moved by irresistible forces and takes directions that can be logically explained. As you know history has as many interpretations as there are schools of thought to do it. Interpretations could be economic, social, biological, psychological, ideological, etc. For interpreting history, Ibnul-Nafees used more than one point of view. Consider, for instance, his geographical interpretation of the identity of the atheists who would overrun the followers of the prophet's religion. He says that "They do not belong to any creed and the prophet's religion has not reached them yet. Therefore, they must be living in remote areas far away from civilized countries. They cannot be living in the Southernmost areas as inhabitants of such areas are weak in hearts because of the sweltering heat in their countries. Therefore, they must necessarily be from the Northernmost areas as these would be daring and ruthless. Yet, they cannot be from the North-west as that area is very thinly populated with most inhabitants living on scattered islands unlike people of the North-east". Thus, by sheer geographical reasoning Ibnul-Nafees was able to narrow it down to the source of aggression: the North-east, i.e. the Tatars and Moguls. Through Kamil he goes on to say:

"When these atheists overrun the countries near them in the North where followers of the prophet's religion live they do not bother to change that religion since they have no creed of their own to impose on the people. On the contrary, when they mingle with the followers of the prophet's religion they come for it. Thus, they will turn out to be a great asset to that religion".

People in countries too far to be seized by the atheists would need to brace up for resisting the enemies and repulsing

them. They can do that only if they manage to mobilize strong armies under the leadership of a brave Sultan. Mobilization of armies would necessarily require increased expenditure the burnt of which will have to be borne by the population. This will inevitably lead to scarcity of cash and less bread-earning opportunities among the people.

As for the Sultan, he should fear nothing, yet be feared by all his subjects. Therefore, he must be intrepid and ruthless. A man of these qualities cannot be of an urban area. He must be from a desert area in the North-east where people are notorious for courage and cruelty.. Thus, Ibnul-Nafees would not even allow the Egyptians the luxury of boasting that their courageous leader is one of them. His contention is that only iron can serve to dent iron. But we have to bear in mind the time and place of Ibnul-Nafees's attempt to interpret the past and justify the present. As mentioned before, the better part of his life in Egypt coincided with the reign of Al-Zahir Beibars, and he was still alive when Beibars' successor, Qalawoun, took over. Both rulers were Memlouks with origins extending back to the Kipchak tribes in Caucasia and South Russia. When Ibnul-Nafees describes his Sultan in the Treatise as "a man who should be of a hot temperament , dark red face, and a hairy body. He should prefer cold food, jump up in his sleep and see horrendous dreams and get into fits of vomiting and diarrhoea," he is in fact describing Sultan Beibars whom he knew only too well as he was his court physician.

Ibnul-Nafees carries on about his Sultan: "Every now and then, he must get away from his seat of power and go to the atheists' quarters with the intention of intimidating them and filling their hearts with fear. So, he naturally needs someone to take over the act for him during his absence." Describing this

Deputy, Ibnul-Nafees says: "The Minister who deputizes for the Sultan must combine courage with kindness and patience; for he has to be pretty sure that God, the Sultan, the people and the military are all pleased with him." In saying this Ibnul-Nafees must have had in mind Qalawoun, Beibar's army leader who succeeded him on the throne of Egypt and who was reputed for being just and merciful. About him, Ibn Tughri Burdi said in his book "Al-Manhal As-Safi" (The Pure Spring):

"He was generous, impartial, and righteous. He was the kind of man to loathe the sight of split blood and tend to do good and be virtuous. He put an end to many wrongs such as squeezing merchants out of cash every time an army was dispatched to the battle front".

The last two chapters of the Treatise can be described as "Science Fiction". From interpreting the past and justifying the present, Ibnul-Nafees shifts to the future in a bid to predict it leaning heavily for that on cosmology.

In chapter nine he tells us about what will happen in the upper space. He says: "when the one called Kamil thought of the sun's movement he noticed that it came nearer to the north during summer and went farther away from the south in winter, yet its daily orbit was of the same circumference over the north and south. The same thing could be said about the planets in the solar system. He further noticed that at the North and the South the distance between the sun and the upper space was gradually decreasing, and knew that there would come a point when the sun would be orbiting the earth nearer to the high atmosphere.. Now for this to happen a number of things must obtain: 1) The moon must get farther away from the sun increasing the number of crescents. 2) The sun and all the planets must then rise in the

west. 3) The sun will always orbit the earth over the equator causing day and night to be of equal duration in all the countries of the world. 4) The seasons will cease to exist leaving areas that are remote from equator in a constant state of severe cold and the equator itself with the adjacent areas in a constant state of blistering heat. Climatic conditions will thus be extremely adverse to human life and consequently the people's temperament will be abnormal with evil and crime rampant everywhere.

In the 10th chapter Ibnul-Nafees describes the impact of these space events on people's lives on earth. When the sun shines permanently over the equator making tropical areas unbearably hot and other farther areas unbearably cold, people's temperament will become abnormal. They will grow weak of hearts and sudden death will become a common occurrence. They will deteriorate in terms of manners and exchanges and fly to arms at the most trivial cause. The evil people will take the lead, relegating the good ones to the back seats. People's minds will so rot that they will not be open for learning. Even their images will undergo change with most of them looking beastly. As the death toll in wars will claim the lives of men, women will have to fall back to lesbianism. Areas with relatively mild climate will become attraction points to people of extremely hot or extremely cold countries such as the Sudan, Turkey, the Tatars, Yagoug and Magoug, upsetting the balance of supply of vegetables and fruits and the demand for them with the concomitant rise in prices. Farther, deep under the ground, hot winds and fumes are generated and pushed up in the tropical areas whereas they thicken and get trapped in the cold areas. The subterran at the two poles will then become much heavier than at the central areas of the earth. This imbal-

ance will cause mountains to collapse and sea water to inundate the land. Earthquakes will result as well as eclipses causing the tree to dry up and fire to break out in the sulphuric land of Yemen extending until it overwhelms the equatorial areas. The atmosphere will then darken with nothing to illuminate it except lightening and thunderbolts.

With this hair-raising image, Ibnul-Nafees depicts the end of the world and Doomsday. The image is derived from knowledge of astronomy and geology available in his age. How, in the light of this image, will the resurrection be? In answer to this question Ibnul-Nafees says: "After the cessation of the sun's declination, another declination must obtain for the movement of the fixed stars to be maintained. Upon the increase of this fresh declination the earth will be back to normal and the atmosphere will be suitable for animal life. If much rain falls in winter and the water mixes with the soil under the heat of the sun producing fungi it will be good for generating the bodies of men and animals. The human soul will then be able to nourish that tiny particle called "coccyx" which is what remains of the body after it dies and degenerates. The soul will then inhabit that particle and people will thus be resurrected into their previous forms. This is resurrection, and praise be to God, the All-Able, the Omniscient".

Thus ends our tour of the past, present and future with Ibnul-Nafees. He tries to convince us that things could not be better, and that all creeds could be deduced mentally from the facts of the sciences. Hence, no contradiction between religion and science or between the ordained laws and wisdom.

It is worth noting that he used in this Treatise the same methodology that had led him to discover the pulmonary blood

circulation, namely the teleological methodology. His hero, Kamil is nothing more than the embodiment of the perfect man in Islam.

At the outset of this speech I said that I had no intention of classifying Ibnul-Nafees into the philosopher-physician or the physician-philosopher category. I will make do with two opinions about him mentioned by the two most important biographers of the man. In "Masalikul Absar" (The Ways of Visions), Al-'Amri says: "Although Ibnul-Nafees was fully acquainted with (theoretical) medicine with all its ramifications, he was not that brilliant in matters relating to treatment. His prescriptions were not outstanding".

Commenting on Ibnul-Nafees's Treatise Al-Safadi said in his "al-Wafi bil Wafayat" (Comprehensive Reviews): "I have read a little book by him in which he parodizes the Treatise of Hayy bin Yaqzan which he entitled "Fadel bin Natiq". In this little book he advocates Islam and its views on prophetships, laws, physical resurrection and the end of the world. By God, he did so well and proved to be an able writer, a deep thinker and a master in secular sciences". After all, I leave it to you to make your own judgement.



COMMENTATOR'S SPEECH

COMMENTATOR'S SPEECH

Prof. Osama Abdul Aziz
EGYPT

It might be a good idea that I talk about Ibn Nafees, the arch of doctors in Egypt at that time. When I comment on one of the greatest commentators on modern history, Ibn Nafees, whose object was to comment on what was written by Ibn Sina. In fact, it is a criticism to what had been written by Ibn Sina. It is a tragedy that Ibn Nafees be a critic of two scientists of his age and of two of the arch scientists, they are Galin and Ibn Sina. It is very difficult and hard indeed, that man should pose to criticize two forward scientists and ideas of Galin had lasted for 1000 years, before Ibn Nafees criticized them. Galin's theory of the visible symptom force, that the blood penetrates from right side to left side through the invisible hole, this idea remained for 1000 years and Ibn Sina had accepted it. He did not criticize it until Ibn Nafees had come up and said that the theory of Galin and the acceptance of Ibn Sina were wrong. This is the grandeur of manner.

Ibn Nafees was born in Damascus, was educated in Egypt and practised in Egypt, and they said he was the arch doctor in Egypt, and this is one lesson of co-operation and the science has un-limited geographical areas. In fact, I can begin with the idea, the theory of Galinoos and the injustice inflicted upon Ibn Nafees by the Western World. Perhaps it was intendedly or

malintendedly. It was approved that there were some translations of the works by Ibn Nafees, but after 300 years after the death of Ibn Nafees and his works, Michael Servetus came to say there is the pulmonary circulation. Ibn Nafees's work has given evidence of rightness.

SLIDE I: This is the philosopher of his age, Galin (Figure not available), who was opposed by Ibn Nafees. It was very hard that a man be set against one of the giants of sceince of his time.

SLIDE II: This is one the translations made by Andrew Ronald. A book of main ideas which deals with this issue and is written in Arabic and English and it is about the works of Ibn Nafees. This book is mainly on the theory of pulmonary circulation which has been mentioned before (See Figure 1).

SLIDE III: This is the book on law by Ibn Sina. It is a new copy, just to remind us of the works of those giants. These books must be translated and preserved in our libraries (See Figure 2).

SLIDE IV: Then Michael Servetus came up to prove or to say, after the lapse of 300 years from Ibn Nafees, about "The blood circulation". This is found in his book "Christianismi Restitutio", or degradation from Christianity (See Figure 3). In fact, this book was the reason for burning him down in Geneva, because his views were opposed to the prevalent ideas of that time and you see how the scientists had suffered during those ages.

SLIDE V: This is a copy of "Christianismi Restitutio", (See Figure 4) which is degradation from Christianity and that was the reason of burning him down.

SLIDE VI: This is the stone which shows the place, where Michael Servetus was burnt down and where he was buried (See Figure 5). This stone is found in Geneva, taken as an indication of the sufferings of the scientists of that time.

SLIDE VII: William Harvey (See Figure 6). After Michael Servetus, by 100 years and thus we have at least a gap of 350 years between Ibn Nafees and William Harvey. William Harvey has proved by experiment what Ibn Nafees said, as we heard, had dissected the corpse of man. Otherwise we would not have come to this reality. In fact, William Harvey had proved experimentally the blood circulation and there is a flow of blood.

In conclusion I want to say that Ibn Nafees was a very great scientist, who set himself against that engulfing and ravishing currents, to establish the fact which is known to us now-a-days and justice must be made to him by us as the researchers had already made to him.

لو خلط بالدم . . . . وهذا التجويف هو التجويف
الأيمن من تجويفي القلب وإذا لطف الدم في هذا التجويف فلا بد من نفوذه إلى التجويف الأيسر
حيث تتولد الروح ولكن ليس بينهما منفذ فان جرم القلب هناك مصمت ليس فيه منفذ ظاهر
كما ظنه جماعة ولا منفذ غير ظاهر يصلح لنفوذ هذا الدم كما ظنه جالينوس فان مسام القلب هناك
مستحصفة وجرمه غليظ فلا بد وأن يكون هذا الدم إذا لطف نفذ في الوريد الشرياني إلى
الرئة لينبث في جرمها ويخالط الهواء ويتصفى ألطف ما فيه وينفذ إلى الشريان الوريدي
ليوصله إلى التجويف الأيسر من تجويفي القلب . . . .

Figure 4. Pulmonary circulation. A page from the manuscript of Ibn Nafis. *"The blood (of the right ventricle) passes through the vena arteriosa (= pulmonary artery) to the lung, spreads through its substance, mixes with the air and becomes completely purified; then it passes through the arteria venosa (= pulmonary vein) to reach the left chamber of the heart."*

Fig. 1: Ibn Nafis's description of pulmonary circulation

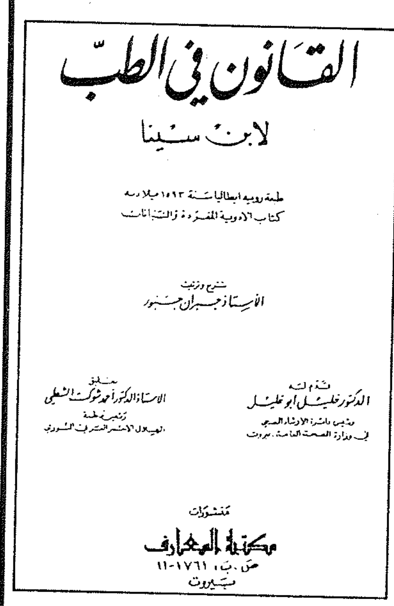


Fig. 2: Title page of Ibn Sina's Canon

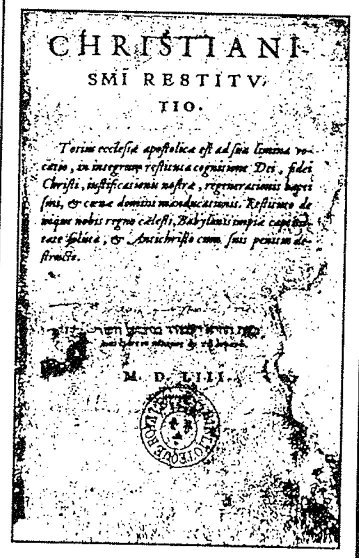


Fig. 3: Michael Servetus description about blood circulation

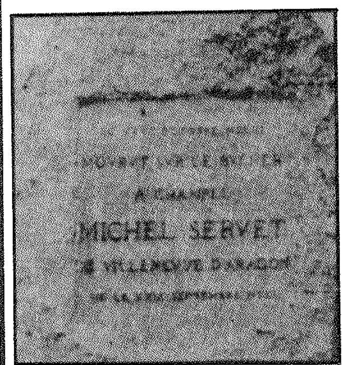


Fig. 4: Title page of Michael Servetus's "Christianism Restitutio"



Fig. 5: Stone picture depicting Michael Servetus

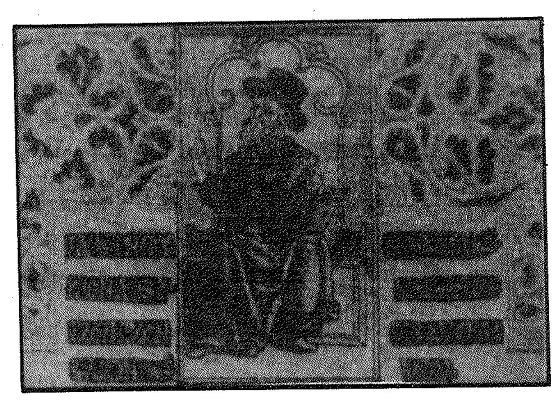


Fig. 6: William Harvey

COMMENTATOR'S SPEECH

Prof. Hasan H. Ali
U.S.A.

I congratulate the members, who participated in the Seminar on Ibn Nafees through the realities that have been mentioned in the framework of the history of his scientific achievements. Can you show the slides, please.

SLIDE: This is the picture of Ibn Nafees (See Figure 7), that I have obtained from one of Egyptian magazines, published by the end of the 60's and I do not have the reference. I think this had been drawn when he was in Cairo in the 13th century. I think that this is the re-production from a drawing, found in Cairo during the 13th century.

I have got some brief comments to make and in the end of my speech, I will try to sum up what has been said in this seminar. It was said that Ibn Nafees said that the heart is not moving and this was among the things that incited people to say that he imagined things and did not prove any thing. He said that the function of the heart is to create a spiritual substance as well as distributing it to all the other members and the tissues of the body; and this gives the light to what Meyerhof said when he affirmed that Ibn Nafees had said that the heart is not moving. Another point is that in the introduction of

"شـــرح تشريح القانون" Ibn Nafees said that what stopped them- from doing any dissection work, was the Islamic law but if you look it into his service, works and as Dr. Qattaya has said, we find evidence proving that Ibn Nafees has carried out dissections and that Arabs themselves have practiced the science and it is not true that the Arab physicians built their knowledge of the scientific sciences upon theoretical bases and they did not do any dissections and we got certain examples that prove to the contrary of the assumption.

For instance,

(1) How Dr. Razi found the Recurrent Laryngeal nerve without dissection?

(2) Arab physicians speak about dissection as a proof to what they have written and done. But they were not courageous enough to say it publicly, because this was contrary to beliefs and laws.

(3) Abul Qasim al-Zahrawi, one of the most famous Arab surgeons during 10th and 11th century, wrote in the introduction to his book al-Tasrif (التـصـريف لمن عـجـز عن التـأليف) that the practice is the basis of surgery and he encouraged experimental and practical surgery and since then it has acquired its independence as a scientific field.

(4) Ibn Nafees himself has said in "شـــرح تشريح القانون" that the dissection gives the light to the assumption to those who said the inter-ventricular septum has pores in it. All what has been mentioned before, confirms rather than denies what they said that discovery of pulmonary circulation of Ibn Nafees was based on imaginative conjectures rather than practice.

SLIDE: When we say this, we should remember Dr. Suleiman Sami Haddad and Dr. Ibrahim Harrallah, (both dead now), the latter was director of the manuscript center. I got this manuscript from Harvard University. This is the first page of the book "شــــرح تشـــريـح القـــانـون" (See Figure 8). I was very happy because for the first time in my research activities, I found this page and one of the books of cardiology and circulation and that is the famous book in the field of heart and the circulation which is known in United States and the Arabic text was translated into English by translator Nishaat (نشــأت) and I was very happy to see this explanation of the blood circulation from the right ventricle to the lungs and its mixture with Oxygen.

SLIDE: Again a copy of the same book. The slide you see now, is the description of lung dissection (Figure 9), where he explains the air changes, where the Oxygen is changed into the blood. This is the description of the blood vessels (Figure 10), where he spoke about pulmonary veins and arteries. This is a description of the heart (Figure 11), where he says that the coronary arteries feed the heart and not pulmonary arteries.

Now I will be summing up what has been said this morning:

1. Ibn Nafees carried out comparative study of anatomy between animals and human beings and he said that more than one time (ten times).
2. He practised dissection.
3. Ibn Nafees was a free scientist, guided by his brain and his observations and he did not take for granted any or previous health opinions.

4. He spoke about the exchange between oxygen and blood in pulmonary arteries.

5. He gave a full description of the pulmonary circulation and mentioned it five times in his book.

6. He said that the heart depends on certain arteries to be fed and they are coronary arteries.

7. And finally, the Egyptian Dr. Mohyuddin al-Tatawi was the first physician, in 1964, who discovered the encyclopedia of Ibn Nafees, where he described the blood circulation, to be found at Berlin Library in Germany.

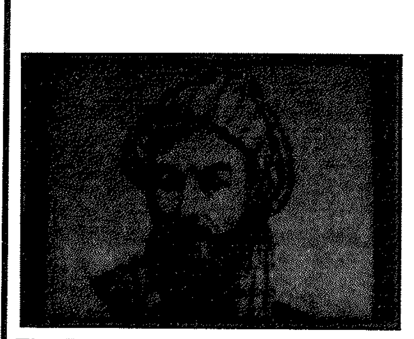


Fig. 7: Ibn Nafees

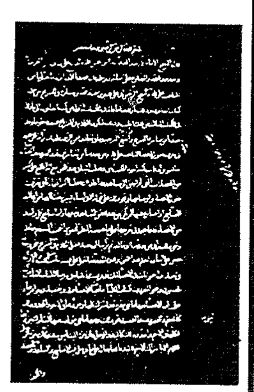


Fig. 8: The introductory page of Ibn Nafees's commentary on Ibn Sina's Canon.

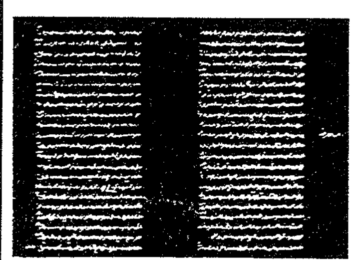


Fig. 9: Description of anatomy of the lung.

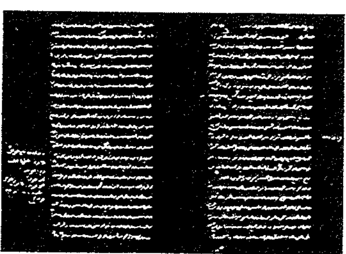


Fig. 10: Description of pulmonary vessels

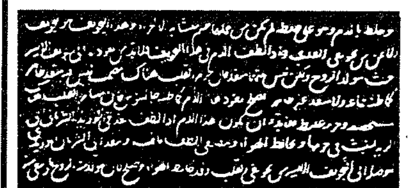
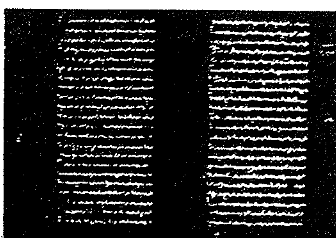
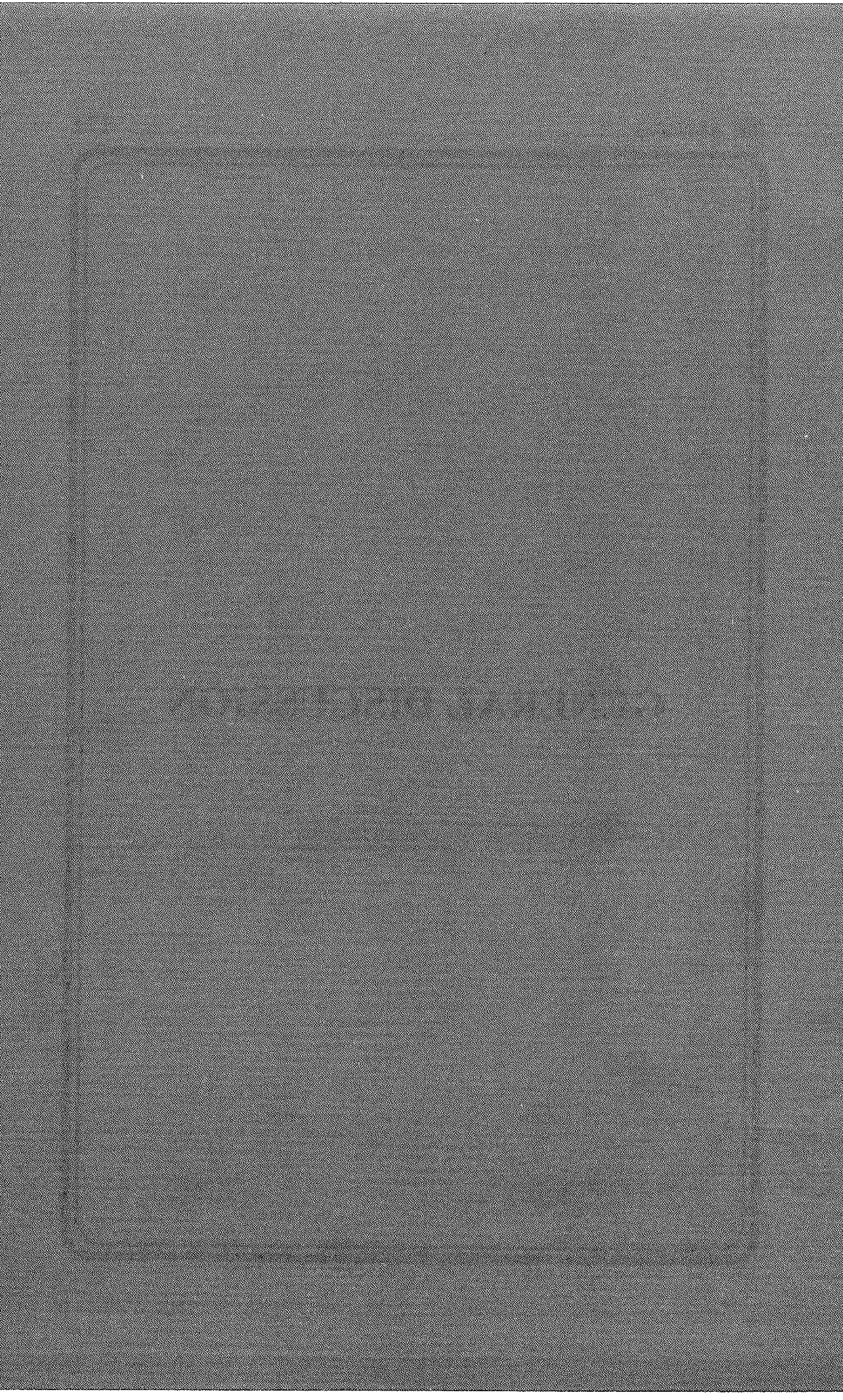


Fig. 11: Description of the anatomy of heart.



GENERAL DISCUSSION



GENERAL DISCUSSION

Dr. Hamadi Al-Sayyed (Chairman)

I thank Dr. Hassan Ali. I feel that we are running short of time and I feel most of people have left. We have a very good film regarding Ibn Nafees, carried out at Halab (Aleppo) University. I would like to expose it for the maximum number of audience. In fact, some people have asked to take the floor and we will start by that and if we finish that, then we can. I prefer to show the film to the audience in the hall.

Dr. Mohd. Salehia,

I will be driving my message home and I like to try to comment on the researches, because this is taken as granted. We have something that is obviously very important and that is we should not over interpret the facts. When we deal with our Heritage, we should interpret it as it is, not over interpret it. Do not suppose that the people will follow you in your course without real thinking. What I am saying now, is addressed to my friend, Dr. Sulaiman Qataya. What I want to say is هيئة التشريع تصدق ذلك. In the 7th century of the Hijra, هيئة is a body in modern Arabic, التشريع dissection and another thing is لم أتحق . Actually Ibn Nafees himself said, that he did not prove it, so, do not tell me that he carried out dissection. He might have and he might have not. He said, I did not prove its truth. Other point is, that we have seen bladder many times and so

what it means when we slaughter the animals or sheep, we see their bladders. I do not want to suppose that it is the human bladder. So with respect to evidence presented by Dr. Sulaiman Qataya, I want real proof.

Now, I address Dr. A.Z. Iskandar, whom I respect and who is my teacher, about these slides' carbons. I am asking him to prove, when was the word (مــجلد) used? In our Heritage, we use the words of second book (الكتاب) and (الجزء) part. Now, the word مــجلد , I don't know when was used by the writer himself, because I see that he said الكتاب الثاني من الجزء الثاني من الكتاب الثالث So, these discussions are really regarding the linguistic aspect. Third point, regarding the way, it was then, in the first slide the handwriting is different than that which we find in slide two, we find that there is a difference between the signatures in the second and third and fourth slides and I think that the handwriting which I am referring to, is to be dated in the 9th or 10th century and I believe that this can be a fault of the copier. Of course, Dr. Albert Zaki is our professor. Now, regarding ابن أبي الحرب أو ابن أبي الحزم , this is a problem created by orientalists, but we have lots of biographies and I am asking my professors to prove three names as we have almost 18,000 stories about those who wrote biographies مثل بشر ابن الخافي أو ابن الحافي أو ابن الجافي So, why we enter into these details. The fourth observation, I am asking him to take into account that we have a book by غياث الغياث who wrote a book named الشامل في الصراع الطبية. We have a copy at the Zaheri Library (مكتبة ظاهري) under a given number and I will give it to Dr. Albert Zaki Iskander and there is another copy in Iran, named تشريح كتاب النافيسي and in the first page we find that they chose the name of ابن ابي الحزم.

Dr. A.R. Hijazi,

This is a comment regarding what Dr. Shehada has said after his thesis. The physicians had told him, that the works of Ibn Nafees will be revised and published and he told us that they have carried out what they said. I think this is a bit exaggerated and I believe that the situation has changed very much since 1951, because it is true, few orientalists know what was the Arab medical contribution. It is true that medical students study the course which does not mention the role of the Arab medical sciences and I think we can safely say that in France, nowadays, there are very few people who know what has happened and most of them ignore our role. Some of them give to the Arab medical sciences a very secondary role. I am not trying to say, that they are to be blamed. We can not possibly ask them to publish our traditions in their countries, but this is a task, we should shoulder, and our scientists should shoulder it as should our specialists, too.

Dr. Said Ashour,

I will be brief, Mr. Chairman. I would like to answer the observations and the criticism. First of all, I like to thank you all and I say very sincerely, that I have highly profited from all the contributions that I have heard here. I thank all the physicians and distinguished delegates who contributed their part. I am not saying that it is not their filed of specialization, but it is of great importance, because it touches upon different aspects and I am very grateful indeed.

Now, regarding the criticism made by Dr. Salehia, I know that he started lately to contribute to the field of manuscripts and because of his dealings, he is trying his best, but I hope or

rather we are all trying to be scientists and we hope, that the methods we use to criticize each other should be less crude and anyhow, the main thing is to try. Regarding the point *Mujallad* (مجلد) which is a term, I like to say that this word has been used since the 4th century of the Hijra and the reason was that the Arabs started to use skins to bind the books, specially in *Qurtaba* (قرطبة) and there were pressed parts and apparent parts. The pressed parts were decorated by gold and book binding in this manner was considered to be one of the famous Islamic Art. Now, regarding the difference of hand writings between one century and another; Dr. Salehia might be right, but, I personally, and after having spent more than 20 or 25 years, I cannot, simply by looking at the slides, decide what kind of handwriting I have. Before I pronounce my point of view, I have got to look meticulously in each letter and the kind of ink that has been used, the kind of paper etc. This is the scientific approach. We are here in a scientific symposium. Now, I think of course, we can be right concerning the difference of the names,(ابن الحرم أو ابن الحزم), but we can not spend all our time on such minor differences.

As for Dr. Albert Zaki Iskander, he mentioned all the points concerning the word *Mujallad* and as I read in front of you, he does not mention مجلد . He says, الكتاب الثالث من النمط الأول من الجزء الثاني الخ. فكلمة مجلد موجودة in bibliography. He said 300 terms in *Mujallad* Safari (مجلد سفري). That was what he said, but the word *Mujallad*, I did not see in the book. Now, concerning Ibn Al-Haram or Ibn Al-Hazam(ابن الحرم أو ابن الحزم), I corrected it and lot of them said his name is Ibn Al-Hazam and some of them said Ibn Haram instead of Ibn Hazam. Two, contemporary experts or scholars in 1968 published something and said that it is Ibn Haram. So, we say (ابن الحزم)

and who says (ابن الحـرم) he is wrong, so that we don't repeat that mistake. Now, concerning the handwriting, if this treatise was published, it will be published with the slides and at that time you can look at the handwriting and I did look at the (م - ر) etc., and all other letters. I would like to to see the difference between two things, the writing of Ibn Nafees and then what we call *Al-Tamlik* that is to say are made in different writing. So, I could not mention whether that was writing of Ibn Nafees or writing of others. So, there is no manuscript without the entry, without *Al-Tamlikat* and this shows well when the manuscript is old.

Dr. Hamadi Al-Sayyed (Chairman),

I give right to Dr. Salehia to say what ever he said or what ever he wants. I give the floor to Dr. Suleiman Qataya.

Dr. Sulaiman Qataya,

First of all, I am astonished that Dr. Salehia, who is one, in his own capacity of Arabic language, uses the word (ان أضـرب), that means 'I criticize'. Of course, here we are not in an arena, we are discussing only. And I am astonished that a scholar like Dr. Salehia asks me about the meaning of word هـيـئـة which means 'a body', nowadays. I think that even if he talks to a secondary school student about the word هـيـئـة الـتـشـريح , he would say 'a group or the team incharge of the dissection', and then when Ibn Nafees said that, 'We saw the bladder'; it means he saw the bladder of the human being. We know that Ibn Nafees was not dealing in science only, but even philosophy also. He was a scientist and he had scientific thinking and so when he says the word and repeats that word; he knows what he

means. So, he says شاهدنا , that means he saw that with his own eyes and touched it with his own fingers.

Dr. Abdul Karim Shehada,

I think that Dr. Qataya has defended us enough and quite adequately.

Dr. Mohd. Salehia,

Once more, I say the word هيئة . Is this a group of people or if there was a group هيئة , why did this group work and how it worked. I know that we talk about United Nations etc. So, the discussion over the word هيئة is in Arabic. We probably need another Conference in order to discuss this. We should treat each other as scholars, who discuss scholarly discussions. A gentleman who says that this will take time and that in a short review we cannot check, we can not decide. There is a paper that will be presented and to say whether this writing was from the 7th century or another century.

Dr. Hamadi Al-Sayyed (Chairman)

Now, there is no time but I promise to Dr. Sulaiman Qataya to show the film later, but if he wants to show it now, we apologize. We are all friends and we hope to continue the discussion after lunch.

